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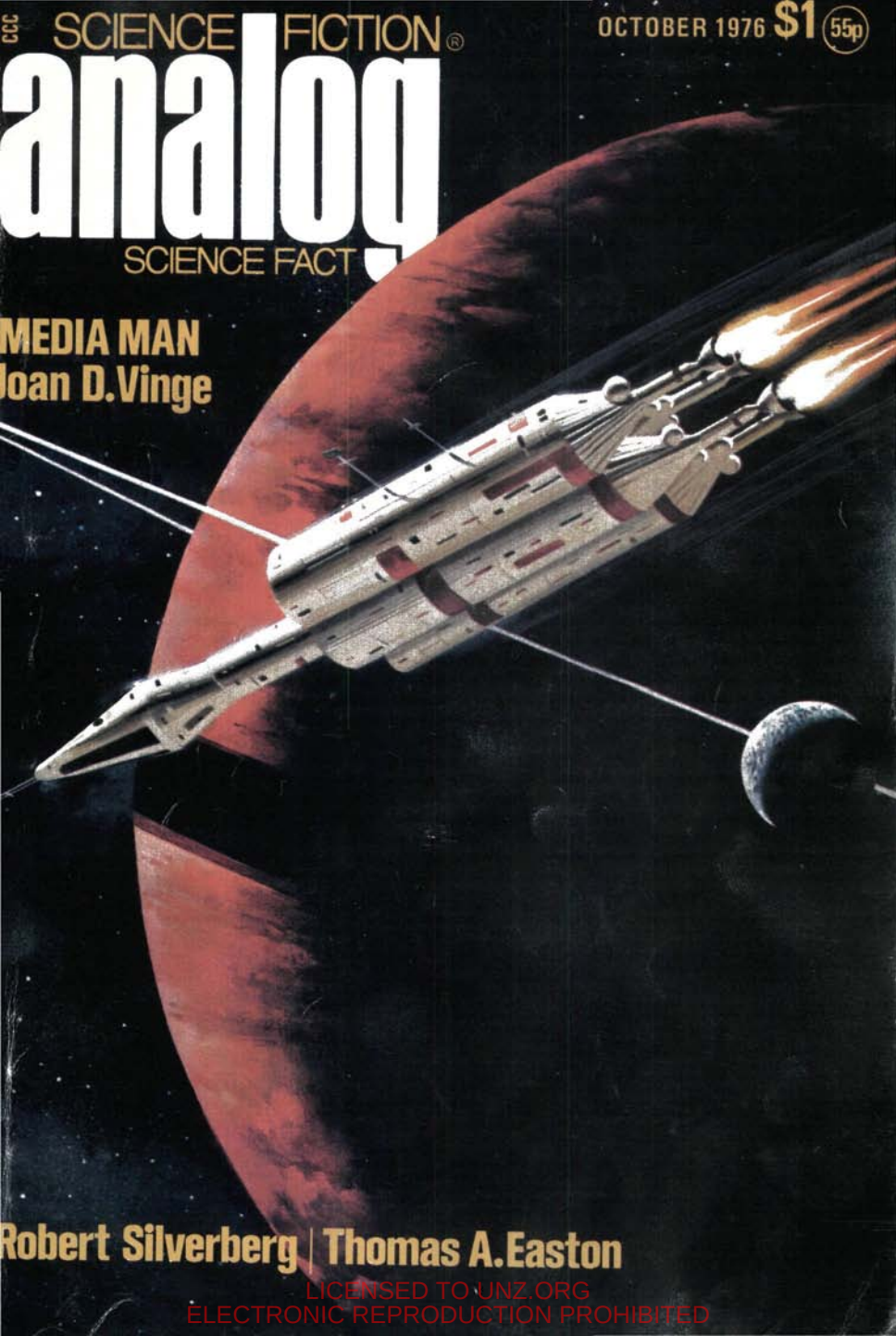

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editorial

ideas or ideologies

". . . though the will of the majority is in all cases to prevail, that will, to be rightful, must be reasonable; . . . the minority possesses their equal rights, which equal laws must protect, and to violate which would be oppression. . . . (L)et those (who hold unpopular opinions) stand undisturbed as monuments of the safety with which error of opinion may be tolerated where reason is left free to combat it."

Thomas Jefferson
First Inaugural Address
4 March 1801

The most difficult task in the world is to get a person to change his or her mind. In politics, in social life, even in the whirlpool of ideas we call science fiction, people tend to bull ahead with their ideas firmly fixed inside their skulls.

On matters out at the frontiers of scientific thought such as Immanuel Velikovsky's theories of interplanetary cataclysms, or UFO's, or astrology, dowsing, the Dean Drive, et al—even the allegedly open-minded science fictioneers refuse to budge from preconceived opinions.

Here on the pages of this magazine we have investigated many controversial sets of ideas. From the mail you readers send in, precious few minds are changed either by sober examination of the available evidence or by passionate rhetoric. If somebody really believes that Hieronymus machines work, or that Genesis is literally true and Evolution is mistaken, ar-

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gument does not change that person's mind. If anything, argument drives the person to fight all the harder to support his or her beliefs.

And it's marvelous the way a firm believer can interpret information. L. Sprague de Camp's article in our April issue, "The Breeds of Man," drew letters vilifying de Camp as a fascist racist—and also as a softheaded armchair liberal who's making excuses for genetically inferior people!

Part of the problem, of course, is that people tend to categorize ideas according to their own personal preconceived ideologies. As Adlai E. Stevenson once quipped about a political opponent's attitude: "These are the conclusions upon which I base my facts."

Take de Camp's article on eugenics, for example. The central issue was: Which plays the dominant role in the development of an individual human being, heredity or environment? Where de Camp detailed the arguments in favor of heredity being the main influence, some readers took him to task for being a racist. Where he showed how environment shapes young minds, other readers called him an apologist for the mentally deficient. And so (as a former SF writer once said) it goes.

In science itself, of course, there's none of this noisy jawing. Scientists are dispassionate thinking organisms who are influenced by nothing except facts and numbers.

Oh yeah?

This squabble of heredity vs. environment has exploded all over again. Biologists, social scientists, anthropologists—even a few broad-minded physicists and chemists—are battling loudly about Edward O. Wilson's monumental work, *Sociobiology: The New Synthesis* (Harvard University Press). This is the kind of name-calling, doom-crying, heaven-shaking academic argument that make the historians of science leap up and down with glee. It would even make a terrific Hollywood movie, partly because the two principle antagonists—Wilson and Richard Lewontin—are (or were) friends and work within spitball range of each other at the Harvard Museum of Comparative Zoology, where Wilson is the entomology curator and Lewontin is professor of zoology.

Tom Easton's science fact article in this issue gives a good explanation of the basic ideas in *Sociobiology*. It might be a good idea to read his piece right now, and then return to this Editorial.

Wilson's "synthesis" contains many ideas and conclusions that are at odds with orthodox understandings of the root causes of human behavior. At heart, Wilson's studies of social organisms—which include slime molds, insects, and primate apes—have led him to the conclusion that heredity is the major factor in human social behavior. We do the things we do because

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we have genetic behavior traits built into us. Much of our behavior is pre-wired, and no matter what the environmental influences around us, we will behave the way our genes blindly oblige us to behave.

Predeterminism vs. free will, all over again. But this time Wilson is citing scientific evidence in favor of predeterminism. Social behavior is biologically determined, according to Wilson.

To some scientists, especially those who prefer to believe that human beings possess free will and have an enormous repertoire of behavior available in response to environmental pressures, Wilson's *Sociobiology* sounds like a reworked version of the old Social Darwinism, a philosophy that was used in the Nineteenth and early Twentieth centuries to justify European colonialism. Social Darwinism undoubtedly influenced Hitler's thinking, and if a philosophy can be condemned on the strength of the people who claim to be its friends, Social Darwinism went into the oven together with six million Jews.

But here it is again, cry Wilson's critics, all dressed up in modern scientific trappings.

The leader of those critics, Lewontin, helped to organize an organization called the Sociobiology Study Group (SSG). Affiliated with Science for the People, the SSG has acted as a sort of "truth squad" to point out what its members believe to be mistakes, oversimplifications, and errors of judgment in Wilson's work.

Science for the People has been branded "radical" since it was first formed in the Sixties. The SSG has not hesitated to associate Wilson's ideas with fascism, in critical essays that have appeared in the *New York Review of Books*, as well as in more traditional scientific journals. Not to be outdone, Wilson wrote a piece for the *New York Times* Sunday Magazine last fall.

So the epithets flow. Even in the level-headed British journal, *New Scientist*, a critique of *Sociobiology* was illustrated by a cartoon of insects dressed in Nazi uniforms and giving the Hitler salute. "It preaches what such theories have always preached: that the present social order is natural, inevitable, and unchangeable," said the Science as Ideology Group of the British Society for Social Responsibility in Science.

In the same issue of *New Scientist*, the magazine's science editor, Roger Lewin, criticized the critics and accused them of taking Wilson's words out of context and twisting their meanings.

Science, the weekly journal of the American Association for the Advancement of Science, reported on the furor and was deluged with letters from both sides of the argument. One such letter blasted the SSG's tactics:

"Lewontin, Gould, and others of

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the Sociobiology Study Group fear that Wilson's *Sociobiology* will justify the existing political order of society. That the existing political order will use the tactics of the Sociobiology Study Group as a model for the intrusion of ideology into science seems just as likely and even more to be feared."

Indeed, an ominous echo of that fear has already sounded in Washington, where the Congress has begun to examine research grants awarded by the National Science Foundation, with an eye to rejecting research programs that the politicians deem unworthy of support. (More on that in a future Editorial.)

The battle over *Sociobiology*, to date, has not been a scientific debate over the available evidence on the causes of human behavior. It has been an ideological squabble, marked by cries of "Fascist!" and "Ideologue!" rather than rational, reasoned argument.

The scientists should be working hard to find and present the evidence about human behavior. Wilson claims he has done this, but most of his work is concerned with observations of insect behavior and analogies about similar human traits.

If we really are little more than puppets at the ends of our DNA double helices, we ought to know about it. Alternatively, if our genes merely provide a physical form that can alter its behavior in almost any way in response to environmental stimuli, we should know about *that.*

It seems clear that science fictioneers would prefer to believe that free will exists, and that human beings have an almost infinite range of potential behavior traits. But wanting to believe it does not make it so, and it is the duty of scientists to find the facts and report them to us all. Galileo wasn't being "popular" when he insisted that the Earth moved around the Sun. Einstein didn't get any offers from Hollywood when he sprung Relativity on us. Shockley is getting hooted down at university campuses without a chance to speak because he believes something that most of us don't.

Jefferson would have listened to Shockley. Perhaps, being a slaveholder, he might even have wanted to believe Shockley's ideas about genetically-induced differences in inherent intelligence levels between racial groups. But I suspect he would have demanded strong, convincing proofs.

We should all consider Wilson's ideas carefully, and give equal thought to the criticisms of Lewontin and others. Human beings do not behave like ants, and to equate insect behavior with a human institution such as slavery seems like shaky reasoning to me.

But the conclusions we draw, concerning *Sociobiology* or anything else, must be based on the evidence

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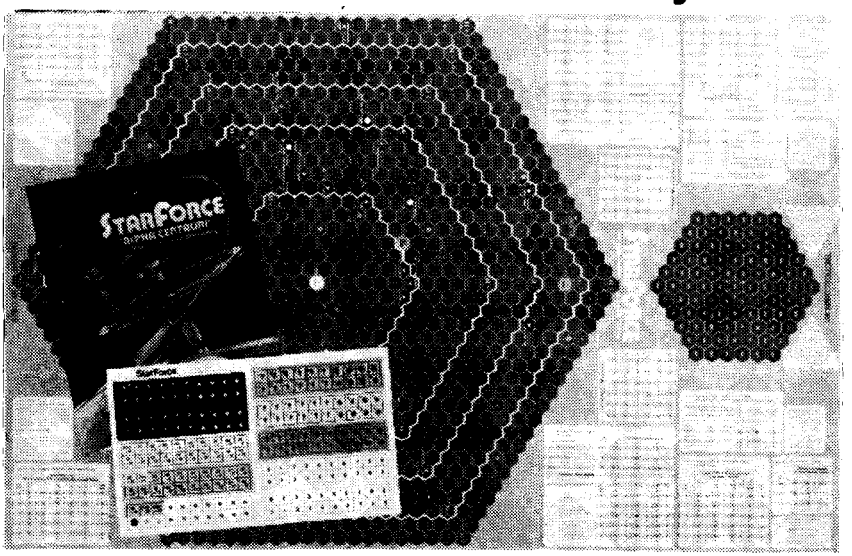

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At the core of every person—and every civilization—is a need for survival, and growth.

JOAN D. VINGE

The sound of silence filled the black and silver vacuum of the Mecca docking field, echoed from the winking distillery towers, the phosphorescently-glowing storage sacks of gases, the insectoid forms of the looming cargo freighters. But it only filled the helmet of Chaim Dartagnan's suit by an effort of will, as his mind blocked the invidious clamor from the helmet's speakers:

"Demarch Siamang, Demarch Siamang—!"

"—true that you're going to—"

"What will you be bringing back?"

"—rescue and stranded—?"

"Hey, Dartagnan, c'mon, Red, give your ol' buddies a break!"

Dartagnan smiled, released the mooring rope to casually readjust his camera strap against his shoulder. *Eat your hearts out, bastards. Any one of you'd break my neck to be here instead of me.* He glanced back across the glaring, pitted gravel of the field. At the very front of the crowd of curious beyond the gate he saw the elbowing desperation of his fellow mediamen, cameras draped across the barrier; the security guard shoved them back with what looked like relish. Independents all, crawling all over each other to get at the big story, or the unique pitch, that would win the attention of a corporate head, and earn them a place in the ranks of a corporation's promotional crew. *There but for the grace of Siamang and Sons go I* . . . He had won, by flattering the hell out of Old Man Siamang; won the chance to prove his reporting and image-hyping skills as the only mediaman along on this (he saw it in rhetoric) History-Making Journey, a Daring Rescue by a Siamang Scion, a Philanthrophic Family's Mission of Mercy . . . *my ass,* Dartagnan thought. He saw the two corporate cameramen filming his passage, the colored armbands that made them Siamang's men; his stomach constricted over an unexpected pang of hope.

He glanced up, at the purity of blackness unmarred by atmosphere, at the stars. Somewhere below his feet, through kilometers of nearly-solid rock, was the tiny, pale spinel of the sun Heaven. He would be seeing it again, soon enough—he focused on the looming grotesqueness tethered at the end of the

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mooring cable, bifurcated by the abrupt edge of the asteroid's horizon: the converted volatile freighter that would take them across the Main Belt, and on in, to Heaven's second planet, to pick up one man . . . and a treasure. The three jutting booms that kept its nuclear electric rockets suspended away from the living quarters clutched rigid cylinders instead of the usual flimsy volatiles sack; it carried a liquid fuel rocket for their descent to the planet's surface.

The rest of the party was clustering now beneath the ship. He pulled himself along the final length of cable, unslung his camera and checked its pressure seal, plugged the recording jack into his suit's radio. He began to film, identifying one figure from another by the intricately colored geometric patternings on their suits. There was Old Man Siamang, praising the nobility of a single human life, no effort should be too great to save this man—and a salvage find that could benefit all the people of the Demarchy . . . Dartagnan shook his head, behind his shielding faceplate. The Demarchy was an absolute democracy, and it's philosophy was every man for himself, unless he got in the way of too many others . . . or he happened to have something too many others wanted.

Chaim knew, because it was his business to know, that a prospector had gotten himself stranded on Planet Two when his landing craft broke down. The prospector's radioed distress calls had been monitored; and knowing, like everyone else, that no one would come after him unless it was worth their while, he had revealed that he had found a considerable cache of prewar salvage items, including computer software that could streamline any distillery's volatile processing.

The distilleries were among the few of the small, independent corporations of the Demarchy to have the resources to send a ship in after him, and his discovery provided them with the motivation. Siamang and Sons had as much motivation as anyone, but they also had one crucial additional asset: they alone had the rocket engines available for a landing craft. And so Siamang and Sons would be the first to reach Planet Two, making them most likely to get the rights to the prize as well.

Old Man Siamang had finished his speech, and the handful of representatives of other distilleries responded with all the sincerity their silent applause implied. Sabu Siamang, the old man's son and heir, added a few words, equally insincere. *But great copy.* Siamang was sending his own son on a journey into the unknown, a landing on a world with not only a substantial gravity well, but also the unpredictability of an atmosphere. Maybe there was no one else Old Siamang would trust; but Dartagnan had heard it rumored that

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there were other reasons why the old man might want the future corporate head to face a little reality, and responsibility. Young Siamang said good-bye to his father—any resentment well-disguised under a gracious respectfulness—and to his wife. Dartagnan felt surprise that a woman of her position had come out onto the surface, even for this short a time. Her voice was calm, self-assured, like her husband's. Chaim wondered whether she did it for appearances, or if she'd wanted to come; he felt another sharp, sudden emotion, ignored it, unsure even of what it was.

He filmed the ritual of cordial bowing, the leave-taking, the others going back across the field; filming and being filmed, he followed Sabu Siamang up into the waiting ship.

Dartagnan kicked free of his suit in the cramped alcove, with the unconscious grace of a man who had spent his whole life on planetoids where gravity was almost nonexistant. He pulled himself through the doorway into the control room, took in the instrument panels: Siamang leaned lightly against one, probing carelessly among the rows of dark buttons.

"Don't touch those! . . . please, Demarch Siamang." The soft, almost girlish voice had a cutting edge of irritation, that dulled abruptly with remembered deference.

Dartagnan looked past Siamang in the dim half-light; saw the pilot, the third and final member of their expedition. *Just a kid,* he thought, startled: a slim boy in a dark, formless jumpsuit, with short sky-black hair; average height, his own height, maybe two meters. Epicanthic folds almost hooded the bad temper in the boy's dark, up-turning eyes.

Siamang looked around, startled at the tone; an expression of not-quite-apology formed on his face. "Oh; sorry." A broad expanse of smile showed against his dark skin, darker hair. Dartagnan irrelevantly remembered animal faces frescoed on an antique table. (He had never seen any real animal larger than an insect; they were extreme rarities since the Civil War.) Chaim was never sure of the color of Siamang's eyes, but only that they struck with the blinding intensity of a spotlight. He saw the pilot falter and look down. Siamang looked back at Dartagnan, relaxing. Chaim faced the blinding gaze easily, used to not-seeing a face. Siamang was in his mid-thirties, perhaps ten years older than Dartagnan himself, and the rich embroidery of his loose jacket, the precise tailoring of his tight breeches, the shine on his boots, were blinding in their own right. *The well-dressed demarch* . . . "You haven't met our pilot, have you? Mythili Fukinuki . . . Our token mediaman, Mythili—"

Something in Siamang's voice made the pilot's surname into a

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double double-entendre. Dartagnan looked back at the pilot, stared, as suspicion became realization. *My God, a woman—?* He didn't say it aloud; was grateful, as her eyes snapped up, burning with hostility. He had never seen a female pilot, they were as much of a rarity as a living animal. He realized belatedly that Siamang had not introduced him, apparently wasn't planning to. He wondered if Siamang had already forgotten his name. "Uh—my name's Chaim Dartagnan. My friends call me Red." He raised a hand, gestured at the auburn friz of his hair, above his own faded-brown skin.

The pilot categorized him with a look he had grown used to.

Siamang's easy laughter filled the uneasy space between them. "I didn't think mediamen had any friends."

Dartagnan matched the laughter, added a careful note of self-deprecation. "I guess I should've said 'acquaintances'."

"Red, here, is up from the media ranks, Mythili. If he does a good job Dad's going to hire him permanently. So be nice to him; you may have to be seeing a lot more of him." He winked, and the pilot's expression changed slightly; Chaim estimated that the temperature in the room dropped ten degrees. "How does it feel, Red, to be up here now, instead of down there with the rest of the coprophagous corps?"

Dartagnan laughed again, meaning it. "Real good, Boss. Just fine. I plan to make a habit of it."

"We're scheduled for departure in one kilosecond, Demarch Siamang," the pilot said. "Maybe you ought to check your cabin to make sure all your belongings are aboard. Just down the passageway—" She pointed at the hole in the middle of the floor, ringed by an aluminum guardrail.

"Good idea." Siamang pushed himself away from the panel, moving by her as he half-drifted toward the well. "Good to be aboard, Fukinuki . . ." His hand slid down over her buttocks in passing.

If looks could kill, we'd be dead men. Dartagnan studied the floor, waiting to be turned to stone.

"Well?"

He glanced up, not focusing.

"You have the crew's dormitory all to yourself. Do you want to check out your belongings or not?" She pointed again. She had moved out of range of the exit well.

He waved at his camera and sack of gear, at his own threadbare, unembellished jacket. "This's it; I travel light." He grinned ingratiatingly at nothing, got no response. "You know . . . uh . . . I have the same problem. Everybody's always asking me, 'Where's the Three Musketeers'?" It was a subject of morbid fascination to him that the most stupid and illiterate of men seemed somehow to

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have heard of that obscure Old World novel.

"I don't know what you're talking about." She drifted to the control panel, caught hold of a stabilizing strap, began to check readings.

"What's—"

"And before you ask, 'What's a nice girl like me doing in a job like this', I'll tell you. It's because I want to be here. And yes, no, no, and no. Yes, I am sterile. No, I wasn't born that way. No, I'm not sorry I did it. And no, I did not get the job by agreeing to put out for my passengers—I got it because I'm a damn good pilot! . . . Any more questions, mediaman?"

"No . . . I guess that about covers them all." He raised his hands, palms out in surrender. "But actually," he lied, "I was only planning to ask if you'd mind my filming our departure on your screen."

"I do mind. The control room's a restricted area as far as the passengers are concerned."

"It's my job—"

"It's *my* job. Keep your lens out of it."

He shrugged, and bowed, and stepped into the well.

Supplies and equipment had been stored in the crew's quarters, filling most of the space from ceiling to floor, wall to wall. Dartagnan found the one remaining bunk halfway up a wall and strapped himself onto it, comforted by the feeling of closeness, used to it. *My God, is it really happening* . . . He shut his eyes, hands under his head, relaxed his body abruptly, thoroughly, like switching off a machine. Memories from the time when he had piloted his father's ship showed him the images he would have seen on this ship's viewscreen, as they rose almost silently, almost without sensation of movement, from Mecca's surface . . . his imagination expanded, for a vision of the entire Heaven system, circling in a sea of darkness:

The Heaven system consisted of a G-class star orbited by four planets. The two inner worlds, nameless, were essentially uninhabitable, one too hot, one too cold, with nearly nonexistent atmospheres. The two outer worlds were gas giants: Discus, a carnelian scarab set within twenty separate bands of sun-silvered dust and frozen gases; Sevin, dim green, and unreachable since the Civil War. Both of these worlds were also uninhabited.

But between Planet Two and Discus lay an asteroid belt, the Heaven Belt, that once had held a thriving human colony richer even than its parent Earth. But the Civil War had destroyed Heaven Belt, bringing death to nearly one hundred million people, most of its population; and now the Belt was for the most part a vast ruin, where the still-living preyed on the artifacts of the dead in order to keep on living. Among the small isolated

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pockets of humanity that still continued, the Demarchy had survived almost intact, due to its location. The Demarchy lay in the trojan asteroids, a 140,000-kilometer teardrop of planetoids trapped forever sixty degrees ahead of Discus in its orbital path. The Demarchy had been able to continue trade within itself, and with another surviving subculture, the inhabitants of the ice-bound debris that circled just beyond the rings of Discus proper. The Ringers supplied the volatiles—oxygen, hydrogen—and hydrocarbons necessary to life, as they had once supplied them to the whole of Heaven Belt. In return, the Demarchy provided the Rings with the pure minerals and refined ores that it had in plenty.

Even before the war the corporations that dominated the Demarchy's economy and its trade had been primarily small and fragmented. The self-interested nature of the Demarchy's town-meeting style of government discouraged monopolies, and so the inherent competitiveness of capitalism had gone to an extreme. The same sophisticated communications network that kept the Demarchy's radical democracy functioning also provided a medium for the expression of corporate competition, and as a result the citizens of the Demarchy were dunned by a constant flow of news disguised by promotion, promotions disguised as news. The need for an ever slicker, more compelling distortion of the truth had created a new ecological niche in Demarchy society, one that had been filled by the pen-for-hire, the mediaman, willing to say anything, sell anything, without question, for the highest bidder. Willing to do anything at all to impress a corporate head . . .

Dartagnan grew rigid unconsciously; pain knifed him in the stomach. He pressed his hands down over the pain, sighed, remembering the bribes, the lies, the haunting of offices and corridors, the long, long megaseconds it had taken to catch Old Man Siamang's ear at last, in a public washroom . . . the obsequious flattery it had taken to win an interview, and in his office, the careful camera angles, the fulsome praise. Sabu Siamang had been there too, easy, gracious, charming, the complete gentleman. Dartagnan had used the same fawning approach on him, with mixed results. Sabu had asked his name, bemused, and asked, "What happened to the Three Musketeers?" Dartagnan had laughed too loudly.

Dartagnan winced mentally, opened his eyes, staring at the wall . . . But Old Siamang had liked his work, had offered him this bizarre journey as a reward; ten megaseconds away from civilization, putting him out of touch with everything he needed to know. But if he did his job well, that wouldn't matter; when he returned to Mecca

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city he would be Siamang's man, and his life would be secure at last.

He thought about Mythili Fukinuki, Goody Two-Shoes, I-don't-put-out-for-the-passengers, wondered how the hell she'd ever won the old man's alleged heart. A woman pilot, for God's sake—one of those women who put selfish interests and personal ambition above their own biological role as women, as childbearers, as the preservation of mankind's future.

Before the Civil War there had been no reason why women could not work or travel in space; but the war had changed many things, even for the Demarchy. The Demarchy still had the resources to preserve sperm, but not ova; because of the high shipboard radiation levels men were exposed to—both from solar storms and from the dirty atomic fission batteries of their own ships—they were usually sterilized, and a supply of undamaged sperm was put aside for the time when they were ready to raise a family. Sound, fertile women had no similar recourse, and so they were encouraged, even forced, to remain in the relative safety of the cities, protected by walls of stone, supported by their men. But with the comparatively high background radiation from the dirty postwar power sources, even in the "protected" cities the percentage of defective births was on the rise. Women who could produce a healthy child were considered to be one of the Demarchy's prime assets. But to some of them, that still wasn't enough . . . *She had contacts. That's the only way anybody ever gets anything.*

He heard someone moving, in the commons on the next level; he got up, taking his camera with him. Mythili Fukinuki was heating containers of food in the pantry. He drifted up behind her, looked over her shoulder.

"Lunch time?"

She twisted to face him, startled; light danced along the tines of the fork in her hand.

Chaim jerked back, awkwardly, through half a somersault. He righted himself, hands raised. "Hey, all I want is lunch!"

Her face eased, into a mocking smile; he wondered who was being mocked. "There are the bins, pick out what you want. Remember to close the lids tightly. This is an infrared heater, there's the trash. Eat when you want to, clean up after yourself." She turned back, fixed her containers with a *clack* onto the magnetized tray, moved away to the table.

He joined her with his own tray, half sitting on air in the near-normal gravity of the ship's constant acceleration. She frowned faintly, went on eating, in silence. Uncomfortable, he began, "I'm impressed. This is a hell of a nice ship. I—"

"Well, it looks like the two of you are getting along even better than I imagined." Siamang drifted

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down through the ceiling well. "Put in a good word for me, Red; if you get any further—"

Dartagnan looked up, feeling the edge on Siamang's voice. He offered a grin. "I sure will, Boss . . . if I get any further."

The pilot picked up her tray wordlessly, made a wide circuit upward to the entry well, and disappeared. Chaim heard the door of her cabin slam to, and in the silence, the click of a lock. This time it was Siamang who laughed too loudly. Siamang glanced at the pantry, the empty table, the fork spearing a sticky lump of vegetable-in-sauce halfway to Dartagnan's mouth. Siamang raised his eyebrows, used his eyes.

Dartagnan lowered the fork, noticed something new and peculiar about the eyes. "I just started, Boss, if you want to take mine. I can heat up some more." He offered with his hands, pushed himself away from the table.

"You're sure you don't mind; thanks, Red." Siamang moved complacently in toward the table as Chaim moved away. His voice slurred, barely noticeable. "One thing you must have that I don't is a way with women . . . if you could call that one a woman. Must come from all the lies you tell." He picked up the fork. "You impress me, Red. How can you mediamen tell so many lies, so convincingly? Are you born that way?"

Chaim focused on Siamang's eyes for half a second, trying to be certain of what he saw; Siamang's eyes probed the private darknesses of his mind like a spotlight; he looked away, unfocused. *An aggressor . . .* The disjointed word burned on his eyelids like an afterimage. But the eyes were too bright, glassy, the pupils dilated until he couldn't see an iris. Siamang was high on something; Dartagnan didn't know what, didn't want to know. He smiled inanely. "No, Boss, nobody's born that way. It takes practice; a hell of a lot of practice." He flipped the cover casually down over his camera lens, drifted toward the pantry. He had the sudden unhappy thought that there wouldn't be many scenes worth recording during their transit to Planet Two. He said a quick, silent prayer to no one in particular, that Siamang would give him some decent footage when they got there.

"Tell me something else, Red—" Siamang's voice went on, teasing, vaguely condescending.

Dartagnan grinned, not seeing Siamang, or the room, or even the ship, but only the starry void beyond. *It's going to be a long trip. It better be worth it.*

After the first few hundred kiloseconds Dartagnan stopped carrying his camera, stopped doing almost everything that brought him into contact with the others. Siamang stayed closed in his room, passing the time in a world that

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Chaim was not interested in visiting; he came out only for meals, for an occasional, teasing attack on Dartagnan's scruples, or a casual pass at the pilot. The pilot stayed locked in her own cabin, doing what, Dartagnan didn't know, didn't care; she came out only to eat and check readings in the control room, avoiding them both.

But he used the opportunity of her absence, eventually, to ignore her arbitrary restrictions and get into the control room himself. He filmed the view of stars that showed on the screen; stayed, watching the screen in the comfortable, clicking silence, escaping from the blank-walled boredom of his cluttered quarters below.

His eyes began to drift from the central viewscreen, studying the projected strings of numbers, the intricate geometric filigrees that showed on the peripheral screens. He frowned absently at the angle of the sun, the position of the lightweight screen beyond the ship's hull that kept sunlight from striking directly on the landing module. He reached out at last, typed an inquiry into the computer, watched as the string of figures changed on one screen, began to flash, on and off.

"What do you think you're doing?"

He jerked guiltily, caught hold of the panel as he turned, saw the pilot rise up into the room. "I think one of the propellant tanks on the landing module is heating up; you might want to adjust the sunshade—"

"Get away from there. I told you the control room was off limits! What have you done . . ." She pushed off from the rungs that circled the well's perimeter, came up to the panel. "Of all the stupid—" Her eyes went to the flashing figures on the screen, back down to the panel. Her hand queried, got the same answer. "You're right." She looked up at him again as if she'd never seen him before. "How could you know that?"

"Mediamen know everything." He saw her expression begin to change back. "Well—actually, I'm a qualified pilot."

"You?" She blinked. "I didn't think—"

"Funny. I think the same things about women."

She turned back to the panel; he watched her reposition the sunshade. She said, very softly, defensively, "I don't usually make those mistakes. But I haven't been coming up here as much as I should . . . I shouldn't let him get to me!"

"Siamang?"

She nodded, not looking at him, the soft, shadowed curve of her mouth drawing tight.

"Yeah." He shrugged. "Not exactly what you'd call easy to love, is he?" *But believe me, I've known worse . . .*

"He's a sadist!" Her voice shook.

Dartagnan felt his throat close,

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swallowed. "What do you mean? You mean he—"

"No. No, he's too 'civilized' for that. He's a psychological sadist. When he's with his father, with the other corporation men, he's fine, charming, *normal*. But when it's someone he doesn't—respect—he . . ." she broke off, searching for the word, ". . . he . . ."

"He 'teases'." Chaim nodded. "I'll show you my scars, if you'll show me yours." He hesitated. "Why do you put up with it?"

"I like my job! He—doesn't travel much."

He heard a noise below; his slow smile widened with insincerity as he looked toward the well. "Heads up."

Siamang appeared, pinned them against the panel with his gaze as he pushed upward past the rim of the well. "So here you are—" too congenially. He held a drink bulb in his hand, sucked at the straw.

"Hello, Boss," Dartagnan bowed. "We were just talking about what a pleasure it is to work for Siamang and Sons."

Siamang laughed in disbelief. "I thought we were supposed to confine our socializing to the lower levels."

"I was just getting a little footage of the stars, a little arty effect; with the pilot's supervision . . ." He raised his hands apologetically.

"He was just leaving," Mythili said, her voice brittle.

"Good. Don't want to break the rules, do we, Red?" Saimang tossed his drink bulb out into the air. Chaim watched it arc slowly downward toward the cold metal of the floor. "Time for a refill." He sank, like the bulb, disappeared below floor level. His door opened, closed.

"You're always surrendering, aren't you, Dartagnan? Always lying—"

Dartagnan looked back at the pilot's rigid face, feeling her distaste, and down at his hands, still palm-out in the air. He pulled them in against his sides, unexpectedly ashamed, covered the twinge of his stomach. "Yeah." He wiped his hands on his jacket. "Always lying flat on my back, while the whole damned universe screws my integrity." He stepped into the well.

Mythili Fukinuki caught at the ceiling, stopped herself from drifting on down into the dormitory. Dartagnan looked up, almost surprised.

"Do you mind?"

"Not if you don't." He pushed aside his camera on the bunk. "Make yourself at home. I'm harmless."

She floated down; her knees bent slightly as she reached the floor, stabilizing. Her short, shining hair moved softly across her forehead; her skin was the color of antique gold in the strong light. Chaim glanced away uneasily.

Her own dark eyes searched the

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emptiness, avoiding him. "Why do you do it, if it—"

" 'What's a nice boy like me doing in a job like this?' " He grinned, peering down at her, like the Cheshire Cat. She flushed. The grin disappeared, leaving him behind. "Somebody has to do it."

"But *you* don't." She brushed back her hair. "Not if you really hate it so much."

"The voice of experience?" He baited her, smarting with the things she didn't say. "Goody Two-Shoes, female pilot, tell our viewers how you got where you are. And don't tell me it was clean living. It was connections—"

Her mouth tightened. "That's right, it was. My uncle was a freighter pilot, my father got him to use his influence. But they did it because it was what *I* wanted."

"Well, good for them; good for you. We should all have it so good. If we did, maybe I'd be where you are, instead of where I am."

"There are other jobs. You don't need influence—"

"—to dump fertilizer into a hydroponics tank for the rest of my life? To break up rocks in a refinery? Sure. All the dead-end jobs in the universe, back home on Delhi . . . Being a mediaman, at least I've got a chance, at money, at making contacts . . . at maybe getting free, getting a ship of my own, again, someday. If this's what I have to do to get it—whatever I have to do—I will."

She settled slowly onto a box. "Oh . . . What happened to your ship; what kind of ship was it?"

"It wasn't my ship . . . my father's. He taught me all I know; like they say." He laughed oddly. "He was a prospector, it was a flyin' piece of junk. I never saw it till I was eighteen, I hardly ever saw him. My mother was a contract mother."

"Oh," almost sorrow.

He nodded. "When I was eighteen my father dropped in out of the black like a meteor, and told me I was going prospecting. I spent fifty megasecs learning to pilot a ship, scouting artifacts on rocks with names I'd never even heard of; hardly ever seeing anybody but him . . . and a lot of corpses." He laughed again, not hearing it. "I thought I'd go crazy. Finally he gave up and let me go home, instead. The next thing we heard from him, he claimed he'd made the strike of his life . . . and the next thing we heard, he was dead. He'd smashed up the ship, and smashed himself up, in a lousy docking accident. Some corporation picked up his salvage find, we never got a thing. I had to start doing something then, to support my mother . . . and here I am. I thought I'd enjoy being a mediaman, after fifty megaseconds of prospecting . . . Now, even solitary confinement sounds good."

"Why did your mother let you do it? Doesn't she know—?" Sym-

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pathy softened the clear, straight lines of her face.

"What was she supposed to do? Dump fertilizer instead of me?" He shrugged. "She's nice looking, she got married, maybe a hundred megasecs ago. I don't hear from her much, now; her husband doesn't appreciate me, for obvious reasons . . . While my father was alive, she never even contracted to have anybody else's children. Funny—he stayed with us maybe seven times in six hundred megaseconds, never gave her a thing, except me; but she loved him, I think she always hoped he'd marry her someday." He grunted. "Wouldn't that make a great human-interest filler . . . Sorry. I haven't been filling my quota of compulsive conversation for the last megasecond." And watching her, all at once he was overwhelmingly aware of another need that had not been fulfilled for too long. The fact that she made no effort at all at sensuality made her suddenly, unbearably sensual. He unbuttoned the high collar of his loose, gray-green jacket, shifted uncomfortably above the edge of the bunk, almost losing his balance.

"My father," she said, looking down, unaware, "wanted a son. But he couldn't have one . . . genetic damage. That's why he let me become a pilot; it was like having a son, for him. But there's nothing wrong with that—" her voice rose slightly. "Because piloting is what I always wanted to do."

"Was it? Or was it really just that you wanted to please your father?" He wondered what had made him say that.

She looked up sharply. "It was what I wanted. If a mediaman isn't satisfied to stay in his 'place', why should I have to be?"

Something in her look cracked the barrier of his invulnerable public face. He nodded, "It's not easy, is it? They never make it easy . . ."

She smiled, very faintly. "No, Dartagnan . . . they never do. But maybe you've helped, a little."

"Call me Chaim?"

"I thought your friends called you 'Red'?"

"I don't have any friends."

She shook her head, still smiling; pushed up from the box, rose toward the entrywell. "Yes, you do."

Alone, he meditated on stars until his desire subsided, leaving a warmth in his mind that had nothing to do with sex. He savored it, as he listened to her heating food in the commons above his head; heard something else, Siamang's voice:

"How about heating something up for me, Mythili?"

"I'm a pilot, not a cook, Demarch Siamang. You'll have to do it yourself."

"That's not what I meant—"

Dartagnan heard a magnetized tray clatter on the counter, a choked noise of indignation. "Do

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that for yourself, too!"

More faintly, a door slammed shut. Chaim let her image back into his mind, grinned at it, rueful. *Well, your friendship is better than nothing, but not much better. Poor Goody Two-Shoes . . .*

But he saw little more of her, as a friend or in any other way, for the next four and a half megaseconds; their mutual dislike of Siamang, and fear of provoking him, still came between them, an impassable barrier.

Until finally Planet Two filled the viewscreen: alien, immense, a painter's palette in sterile grays—gray-blue, gray-green, gray-brown. A castaway's grateful voice filled the speaker static; tracing his radio fix, Mythili put them into a polar orbit, breaking the hypnotic flow of grays with the blinding whiteness of ice caps. For the first time, Chaim saw clouds—pale, wispy streamers of frozen water vapor trapped high in the planet's atmospheric layer. He recorded it all, and was filled with a rare wonder at being one of the few human beings in Heaven system ever to have seen it firsthand. It occurred to him that the clouds seemed more common than he remembered from pictures; he managed to make intelligent conversation about it, standing at Mythili's side. And as they made final preparations to enter the ungainly craft that would take them down out of orbit, she asked him quietly to assist her in the landing.

He sat strapped into the heavily padded seat beside her own, in the cabin that seemed cramped even to him. Siamang sat behind them, apparently sober, surprisingly silent. Chaim studied Mythili's movements, saw his own nervousness reflected on her face, but making her movements sharper, more certain, as though it only augmented her skill. She freed them from the grasp of the parent ship, executed the first rocket burn that broke them out of their orbit . . . and began the descent maneuver that neither she nor any living pilot in Heaven system had ever done, with the exception of the man stranded below.

They entered the upper atmosphere; she began the second burn. She would have to maintain a crucial balance: too swift a rate of descent would result in their destruction . . . but too slow a one would exhaust the ship's fuel resources while they were still high above the surface. No ships had been constructed for over two billion seconds in the Heaven system that were capable of using a planet's atmosphere to slow their descent—because since the war there had never been a need for such a ship. Until now: No nuclear electric rocket could produce the acceleration necessary for a planetary landing. And so this ship, that could provide the necessary thrust to slow their de-

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scent, had been constructed of makeshift parts, and with makeshift technology, in scarcely two megaseconds' time.

Chaim read off their altitude and rate of descent from instruments that had never been calibrated for second-to-second precision at six hundred meters per second; clutched the instrument panel with sweating hands, fighting against his own sudden, unaccustomed weight. Mythili dropped them down toward the signal of the radio beacon, the viewscreen virtually useless, blocked by the intermittent glare of their rockets, and the angle of their descent. She bit off a gasp, or a curse, each time they were buffeted or swept from the line of their trajectory by the terrifying force of the unseen atmospheric turbulence.

And at one thousand meters, she began the final burn. Chaim raised his voice, as the sound of the rockets reached them, growing: ". . . six hundred meters, twenty meters per second, five hundred meters–" he felt thrust increase, "–four hundred meters, eighteen meters per second . . . three hundred meters . . . two hundred . . . one hundred meters, ten meters per second. . . ." She cut thrust again, their rate of descent stabilized. ". . . fifty meters, ten meters per second . . . forty meters . . . thirty . . . twenty meters . . . Mythili, we're–" She increased thrust to full, ten meters per second squared crushed him down into his seat. The viewscreen was blind with dust; the ship lurched, noise drowned his words, vibration rattled his teeth, "–too fast!"

Impact jarred through him, almost an anticlimax. Mythili cut power; seconds passed before the silence registered. He blinked at the screen, still swirling gray, and pushed up in his seat against gravity's unfamiliar hand. "Congratulations–" he laughed, finding himself breathless, "it's a planet. . . . And I didn't get a single damned shot of the whole descent!"

She drooped, triumphant, laughing with him. "If you'd been filming instead of being my co-pilot, I don't think we'd be here to worry about it."

He bobbed his head, "Too kind–" touched her with his eyes. She held his gaze, smiling.

"Is it my imagination, or is it getting cold in here?" Dartagnan watched his breath frost as he spoke. He struggled with his spacesuit, feeling leaden and clumsy. He heard Siamang swear in irritation in the cramped space behind him.

"It's not your imagination–the atmosphere acts like water, it's conducting all our heat away right through the hull." Mythili massaged her arms as she studied the viewscreen. "Siamang's engineers predicted something like this."

Chaim saw the dome of the abandoned experimental station,

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nearly a kilometer away across the flat, subpolar plain; and closer in, the ungainly bulk of the prospector's ship. *Both of us made a better landing than we had a right to. . . .* Beyond them both, along the incredibly distant horizon, he thought he saw a dusting of pale snow pocked with broad, shallow craters: the south-polar icecap of Planet Two. He imagined the incredible volatile resources this world represented; remembered abruptly that they were all at the bottom of a gravity well.

"Come on, Red. Get your camera and let's get going. This is what we came for!" Siamang's voice was good-natured, eager. Chaim felt a surge of relief, hoping Siamang's professional business dealings would be easier to record than his private life.

"Coming, Boss. . . . Aren't you coming?" He looked back at Mythili. "Walking on a planet isn't something everybody's done—"

She nodded. "I know. But I have to stay with the ship, it's not very well-designed to deal with the effects of an atmosphere. I have to keep the cabin warm enough so that the instruments don't freeze, and enough fuel has to be bled from the tanks so that they don't rupture. And besides," she lowered her voice, "I stay out of corporate business dealings."

"I see. Well, I'll show you my home movies, when I get back." He settled his helmet onto his head, latched it, picked up his camera. He staggered, stunned by its weight. The surface gravity of Planet Two was over a hundred times normal; he suddenly wished he'd accepted the corporation's offer of a lightweight prewar camera, instead of insisting on his own.

"Come *on*, Red!"

He followed Siamang through the lock and down the precarious rungs of the ladder. The atmospheric pressure kept his suit from ballooning; it clutched him as he moved, with hands of ice.

"Damn *it*!" Siamang stumbled sideways, struck by an invisible blow: wind, Dartagnan realized, as it shoved him roughly back against the side of the ship. His helmet rang on metal. The surface air had been calm when they set down, but the wind was rising now, swirling the blue-gray dust into translucent curtains. Between the gusts he caught sight of a tiny figure starting toward them from the dome.

They struggled out across the shallow, flame-fused dish of the ship's landing area, went on across the fine, loose surface of the dust. "We're real dirt-siders now, Boss," he said cheerfully, more cheerfully than he felt. Dust sandblasted his faceplate; he shut his eyes against it, beginning to sweat, already shivering. Siamang didn't answer, struggled to keep his footing; his face was grim, barely visible behind his helmet glass. Dartagnan looked up at the sky, the spinel sun

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grown large against an alien ultramarine blue. He thought of sapphire, the only thing he could remember that possessed the same purity of color. *They should have named it Blue instead of Two. . . . Blue Hell.* He looked down again, across the blue-gray plain at the dome, hardly larger, and at the suited figure closing with them now, proof that they were actually making headway. He let his camera slip off of his stiffening shoulder, wrapped the strap around a numb, gloved hand.

"If you aren't a sight for sore eyes!" A stranger's voice burst from his helmet speakers; the prospector, castaway, welcoming committee of one. The man held out his hands as he reached them, caught one of their own in each, shook them, bowing, all at once. He moved almost easily, Chaim noticed, envious.

"That's not all that's sore," Siamang said, his congeniality sounding strained. "Let's get in out of this damned atmosphere."

"Sure, of course. Let me take that for you, I'm used to this—" The man reached for Dartagnan's camera.

Chaim waved him off, recalling his duty. "No, thanks, I'm with the media . . . let me get a shot of this. . . ." He moved out, hefting the camera, plugged in, focused, pressed the trigger, tripping over his own feet. *Historic Moment, Historic Rescue, Historic Setting . . . Cameraman Busts His Ass. . . .* They were passing the prospector's stranded ship, Siamang's voice reached him, "Get a shot of that, Red—"

"Right, Boss." He did a closeup of the name painted on the hull, and the silhouette of an insect. "The *Esso Bee?*" He laughed incredulously, heard the others laugh, in amusement, and in startled recognition. He looked back toward the prospector's shadowed face, "Kwaime Sekka-Olefin, I presume?" He remembered the details of the original news broadcast. Their stranded man was an heir to a distillery fortune, but the actual corporation had been destroyed during the Civil War: Sekka-Olefin Volatiles, Esso for short, and this "secret" experimental station had been run by them before the war.

"That's right; and damned glad to meet you!" The man laughed again. "My God—it's wonderful!"

"Our pleasure," Siamang said easily, "our pleasure to be of service, to one man or all mankind."

They reached the low dome at last. Dartagnan recorded it for posterity, set in the desolation of wind and dust and snow, tried to keep his chattering teeth from recording on the soundtrack. Breathing hard, he trudged ahead to film their arrival, found the dark, welcoming entrance of the shelter. A passageway led steeply down, he noticed, as they passed through the airlock; he realized the

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main part of the installation must be underground, to help maintain an even interior temperature. He noticed that one wall of the passage was oddly serrated. He backed slowly toward it, filming, as the others entered the hall; stared, through the lens, as Sekka-Olefin suddenly lunged toward him. "Look out—!" Olefin's voice rattled in his helmet. Olefin's glove caught at his arm, missed, as Dartagnan stepped out onto the air.

The air let him down, and with a yelp of surprise he fell backwards down the stairs. The camera landed on his stomach. He lay dazed and battered, gasping for breath, seeing stars without trying. The others reached him, somehow managing not to land on top of him. They lifted the camera off of him, hauled him to his feet.

"You all right, Red?"

"Say, didn't you see the steps there—?"

"Steps?" he mumbled. "What do you mean—uh!" His right ankle buckled under a fraction of his mass, pain shot up his leg, on up his spine like an electric shock. "My leg . . ." He pressed back against the corridor wall, balancing on one foot. "Hurts like hell."

"Hell's what this place is," Siamang muttered, disgusted. "How about your camera?" He dropped it into Dartagnan's arms.

Dartagnan lost his balance, Olefin reached out and caught him. He shook the sealed case, probed it, turned it over and peered through the lens. His chest hurt. He replugged the recording jack. "Looks okay. . . . Ought to be a great shot of the ceiling as I went over backwards." He tasted blood from his split lip. "I think the damned thing landed on top of me on purpose."

"Good thing it's tougher than you are," Siamang said, "or you might be out of a job, Red."

Dartagnan laughed, weakly. He looked back up the passageway: the purpose of the serrated wall was appallingly obvious to him, in hindsight; steps, a series of plateaus for breaking downward momentum under high gravity. *That's adding insult to injury.* . . . He grimaced.

The prospector offered him a shoulder to lean on, and they went on along the hall.

"How about a drink, to celebrate the occasion? To celebrate my not having to drink alone—" Olefin picked a bottle up off of the floor, in the littered cubicle that had been his home for the past ten megaseconds. Dartagnan noticed a pile of other bottles, mostly empty.

"Sounds good. I could use some antifreeze; this place is instant death. How cold does it get here, anyway, it must be zero degrees Kelvin . . ." Siamang rubbed circulation back into his fingers. They had taken off their suits, at Olefin's urging; the air would have been uncomfortably cool under other circumstances.

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"No . . . no, it only gets down to about 230 degrees Kelvin after the sun sets. Of course, that's not counting the chill factor." Olefin grinned.

Dartagnan sat on the bare cot, his leg up, his ankle swelling inside his boot. Olefin glanced back at him, questioning. Chaim noticed that the eyes were green, freckled with brown, under the heavy brows, brow-ridges. Olefin was in his fifties, and well-preserved for a man who had spent most of his life in space. His unkempt, uncut hair was receding, silvering at the temples, a startling brightness against his brown skin. *Distinguished Scion of Old Money . . . didn't know any of 'em were real people.* Dartagnan shook his head, "No, thanks . . . I'm a teetotaler."

Siamang looked surprised.

"Medicinal purposes?" Olefin asked, gestured with the bottle.

"That's why I don't." He shook his head again, sincerely remorseful. "I can't drink. Got an ulcer." He wiped his bloody lip.

Siamang's surprise burst out in laughter. "An ulcer? What've *you* got to worry about, Red?"

"I worry about having to refuse a free drink. I could sure use one."

Olefin poured vodka into hemispherical cups; the clear liquid stayed level and didn't ooze back up the sides as he poured. Afraid to start feeling sorry for himself, Dartagnan reached for his camera. "Would you say you were lucky in finding so much intact, here, Demarch Sekka-Olefin? It looks like all the life-support systems are still functional. Did that save your life? What happened to the researchers stationed here, after the war?" It almost felt good to him, after seven megaseconds of enforced silence.

Olefin leaned forward on his stool, sharing the eagerness for the sound of his own voice. "Yes, I sure as hell was lucky. Would've been damned fatal on board the *Esso Bee.* But nothing actually happened to damage this station during the Civil War; nobody knew it was here except Esso. After the war nobody was in a position to come here at all. . . . From the looks of things, the crew must have starved to death."

Dartagnan swallowed. *God, the public will love this.* . . . "But . . . uh, the valuable salvage finds you made will mean that they didn't die in vain? Their discoveries will go to help the living—?"

"Yes . . . yes! In ways I never expected." Olefin's voice took on a vaguely fanatical note. "Did you know that—"

Siamang shifted impatiently, set down his cup. "Demarch Sekka-Olefin; Red. If I'm not imposing—" there was no trace of sarcasm "—I'd like to ask that the interviewing be postponed until we've had the chance to discuss more important matters."

"Oh. Certainly. . . ." Olefin

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broke off, seemed suddenly almost glad of the interruption. "Anything I can do, considering what you've done for me."

Siamang composed his face as Dartagnan turned the camera on him. "Of course, the most important matter, the basic reason I've come four-hundred-million kilometers, is—"

—more money, Dartagnan thought.

"—to see that you get safely off of this miserable hell-world of a planet." He produced something packaged in foam from his thin folder. "This is the replacement unit, complete with the instructions, for the component that was damaged when your ship landed here on Planet Two."

Olefin beamed like a child with a birthday present; but Chaim noted the dark flash of another sort of humor that moved behind the hazel eyes. "'For want of a chip, the ship was lost!' To think of all the time and money I put in, perfecting the *Esso Bee* and a nuke-electric that could drag home half a planet; the best design possible—to have it all go for nothing, because one single piece of electronics was put on the outside, when it should have been on the inside. . . . Thank you—I literally can't thank you enough, Demarch Siamang; but I'll do my best." He stood, reached out to shake Siamang's hand heartily. Seated again, he poured himself another drink, raised it in salute, drank it down.

"Well, you can repay us, in a sense . . ." Siamang paused, poised, disarmingly reticent, ". . . by giving Siamang and Sons the opportunity to be the first corporation to make an offer on the computer software that you reported finding."

Olefin gave a quick nod, barely visible, that was not meant to be agreement.

Siamang went on, oblivious. "As you obviously know, it would be vital in streamlining our distilling processes—"

"And in streamlining the processing of a lot of other distilleries," Olefin interrupted with unexpected smoothness. "What I had in mind, Demarch Siamang, was to call a public auction on the media for all the salvage, when I return to the Demarchy. I planned to offer to you, or whoever came after me, a substantial percentage of the take as a reward—"

Siamang's expression tightened imperceptibly. "What we had in mind, Demarch Sekka-Olefin, was more on the order of a flat fee offer on the software. We're not interested in any of the rest, you could bargain however you wanted on that. But it's very important to us—naturally—that Siamang and Sons is the firm to get those programs."

And a general auction wouldn't guarantee you did. Dartagnan hid a smile behind his camera. He real-

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ized suddenly why Siamang and Sons had wanted an edited tape, and not live transmission, on this rescue mission: business transactions were never meant to be public affairs.

"I understand your feelings, Siamang; come from a distillery family myself. But I feel a covert agreement with one firm is too monopolistic, not in keeping with the Demarchy's traditions of free enterprise. . . . And besides, to be blunt, I've got important plans for the profit I'll be making on this salvage, and I want to get as good a deal on it as possible. That software is by far the most valuable part of it."

"I see." Siamang's eyes flickered to the replacement part safely settled on Olefin's knees. Chaim guessed, without trying, what wish he made. "Well, then, if you don't mind, I'll make that pleasant trek to our ship one more time, and radio the home company about your position on the matter." His smile was sunlight on the cold edge of his voice. "They may give me a little more flexibility in making an offer. . . ." He bowed.

Chaim stood up, goaded by an indefinable unease; he sat down again abruptly.

Siamang glanced back, pulling on his suit. "You stay here, Red. Finish your interview. You'd just slow me up. I don't intend to spend any more time out in that open air than I have to." He bowed again courteously to Sekka-Olefin, and left the room.

Dartagnan listened to the odd shuffling of unaccustomed footsteps recede, and swore under his breath, with pain and frustration. He lifted the camera again, compulsively, protective coloring. Through the lens he saw Olefin shake his head, hand up, and reach to pour himself another drink. Chaim let the camera drop, irritated, but relieved to see that the prospector wasn't drinking this one down like the others. There was plenty of time for an interview; with the communications time-lag Siamang wouldn't be back for at least three thousand seconds.

Olefin grinned. "A little loosens tongues, and makes life easier; a lot loosens brains, and makes it hell. I try to draw the line. . . . Fall was worse than you care to admit, wasn't it? Where does it hurt . . . maybe I ought to have a look at that ankle." He stood up.

Dartagnan leaned back against the cold wall, laughed once. "Ask me where it doesn't hurt! Black and blue and green all over. . . . Thanks; but you'd have to cut off my boot, by now, and it's the only one I've got. Doesn't matter, we'll be back in normal gee soon and it won't give me any trouble. I just have to get the job done now—" He winced as Olefin's fingers probed along his ankle.

"Job comes before everything, even you, huh? So you're a corpo-

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rate flak . . ." Olefin's fist rapped the sole of his boot, "Siamang's man?"

"I'm—hoping to be!" through clenched teeth. "So when he tells me to jump, I don't ask why, or how . . . I just ask, 'Is this high enough?' "

"You won't be doing much jumping for a while, for anybody. Got a sprain, maybe a fracture." The green/brown eyes studied him, amused; he wondered exactly what was funny. Olefin went back to pick his drink off of a dusty shelf. "Don't think I could stand to work for anybody else. Comes from being raised among the idle rich, I suppose. . . ."

"You don't have to be rich, believe me—" Dartagnan settled on an elbow, and the cot creaked.

Olefin looked at him, the rough brows rose.

He smiled automatically. "My father was a prospector. Rock poor, to the day he died . . . just when he'd finally found something big, or so he claimed." Establish a rapport with the subject, get a better interview. . . .

"That right? What was his name?" An encouraging interest showed on Olefin's face.

"Dartagnan—Gamal Dartagnan."

"Yeah, I knew him—" Olefin nodded at his drink. "Didn't know he had a son. Only talked to him four or five times."

"You and me both. He took me out with him, though. Just before the last trip he made."

"That's right . . . heard about his accident. Very sorry to hear it."

Chaim shifted his weight. "They called it an accident."

Olefin sat down, said carefully, "Are you saying you don't think it was?"

He shrugged. "My father'd been prospecting for a long time, he knew enough not to make a mistake that big. And it seemed a little coincidental to me that a corporation just happened to be right there to pick up his find."

"Somebody had to get there first—" Sekka-Olefin shook his head. "I suppose in your line of work you don't see the best side of corporate policy. But not many stoop to that kind of thing; that would be suicide, if it ever got out. Maybe his instruments went out; accidents happen, people make mistakes . . . space doesn't give you a second chance."

Dartagnan nodded, looking down. "Maybe so. Maybe that is what happened. I suppose you'd know the truth if anybody would—you play both sides of the game. . . . He held that damned junkheap together with frozen spit—"

Olefin sipped his drink, expressionless. "What made you decide to quit prospecting to become a mediaman?"

Dartagnan wondered suddenly who was interviewing whom. "Prospecting. Maybe I didn't know when I was well off."

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"But now it's too late."

He wasn't sure whether it was a question or a moral judgment. "Not if I make good in this job. . . ."

Olefin nodded, at something. "How'd you like another long-term job instead?"

Chaim sat up, not hiding his eagerness. "Doing what—prospecting?"

"Conducting a media campaign."

Dartagnan slumped forward, oddly disappointed. "That's—a hell of a compliment, from a total stranger. Are you sure you mean it? And what kind of a campaign—what are you planning to sell?"

"Planet Two."

Dartagnan sat up straight again, "What?"

"The colonizing of Planet Two from the Demarchy."

God almighty: a job offer from a maniac. A rich maniac. . . . He reached for his camera. *At least this won't be dull—*

"Let's forget about that thing for a while—" Olefin shook his head. "I'll talk to it all you want, if you accept the job. But hear me out, before you type me as a crank."

Chaim grinned sheepishly. "Whatever you say." He toyed with the lens, aiming it where it lay; he jammed the trigger ON. A sound pierced his left eardrum, barely audible even to him, at the extreme upper end of the register. He gambled that Olefin's hearing wasn't good enough to pick it up. *More than one way to get a good interview . . . a job in the hand's worth two in the offing.* "Okay, then, would you care to expand on your reasons for wanting to establish a colony on a hellhole like Planet Two?" He settled back, hands massaging his injured leg.

Olefin laughed, sobered. "How many megaseconds would you estimate Heaven Belt has left?"

Dartagnan looked at him blankly. "Before what?"

"Before civilization collapses entirely; before we all join the hundred million people who died right after the Civil War."

Dartagnan remembered Mecca city, a man-made geode in the heart of the rock, towers like crystal growths in every imaginable shading of jewel color. He tried to imagine it as a place of death, and failed. "I don't know about the scavengers back in the Main Belt, but I don't see any reason why the Demarchy can't go on forever, just like it always has."

"Don't you? . . . No, I suppose you don't. Nobody does; I suppose they don't want to face the inevitability of death. And who am I to blame them?"

"We all have to die someday."

"But who really believes that? Maybe the fact that Esso was wiped out by the war, the fact that I was squandering literally the last of the family fortune, made me see it so clearly: that humanity's existence here has a finite end; and

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that end's in sight. Speaking of making mistakes, we made a hell of a big one—the Civil War—and one mistake in Heaven and you're damned forever. Damned dead. . . .

"Existing in an asteroid belt depends entirely on an artificial ecosystem; everything that's vital for life, we have to process or make ourselves—air, water, food; everything. But like any other ecosystem—more than most—you destroy enough of it, and nothing that's left can survive for long. It has to retreat, or die. Back in the Solar Belt they had Earth to retreat to, if they needed it, where everything necessary for life happened naturally. But at the time Heaven was colonized, this hadn't happened to them, so they didn't foresee the need. When the old Belters colonized this system, they figured that the raw elements—the ores and the minerals, the frozen gases around Discus—were all they had to have. Never occurred to anyone that sometime they wouldn't be able to process them.

"But that's what's happened. Most of the capital industry in Heaven was destroyed during the war. What we've got left is barely adequate, and there's no way we can expand or even replace it. Hell, the Ringers are hardly surviving now, and if they go under I don't know how our own distilleries are going to make it. . . . How good are you at holding your breath?"

Dartagnan laughed uneasily. "But—" he groped for a rebuttal, found his mind empty . . . like his sudden vision of the future. "But—all right. So maybe you're right, we are sliding downhill to the end. . . . If there's nothing we can do to save ourselves, why worry about it? Just make the best of what we've got, while we've still got it."

"But that's the point! There is something we can do—starting now, we can establish a colony here on Planet Two, against the time when technology fails and the Demarchy can't support us anymore."

"I don't see the point." Dartagnan shook his head. "It's even harder to stay alive here than out in space. Even in a suit, you'd freeze to death! The atmosphere sucks the warmth out of you, even now, when the sun's up. And the gravity—"

"Gravity here's only one quarter what the human body was built to withstand. As for the cold—our equipment wasn't designed to deal with it, but it'd be easy enough to adapt; all we need is better insulation. This's no worse than parts of old Earth. Antarctica, for instance. No warmer than this, and snow up to here; but they didn't mind. The greatest thing human beings have going for them is adaptability! If those dirt-siders could do it, a Belter can do it." Olefin's hands leaped with emphasis, his eyes gleaming like agate, lit by an inner vision. "In fact, part of

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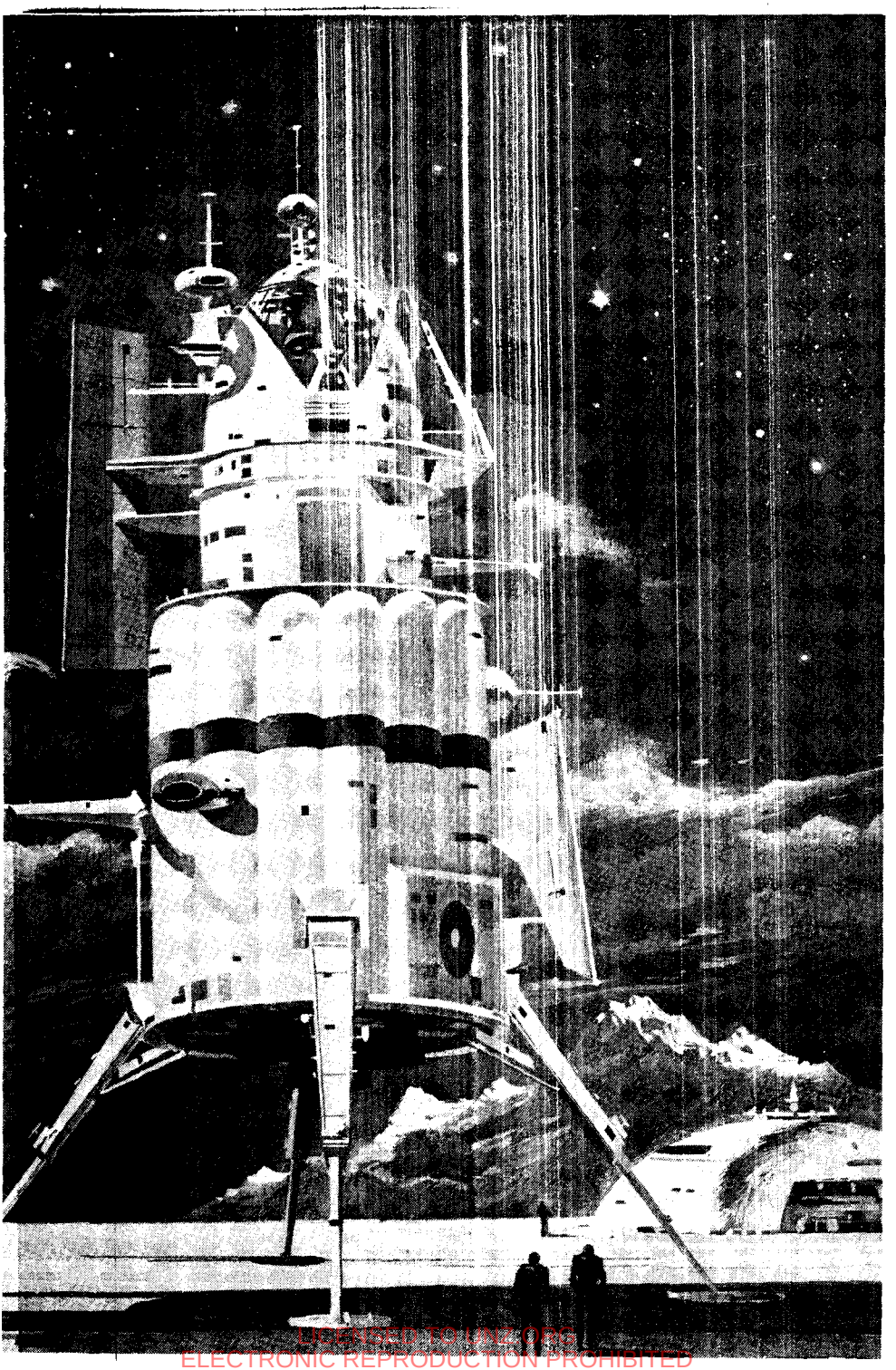

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my idea for a media campaign would be to rename this planet Antarctica: 'Return to nature, cast off the artificial environment; live the way man was meant to live–"

"I don't know. . . ." Dartagnan's head moved again in negation. "You sure this place is no colder than Earth? Besides, the atmosphere's still unbreathable."

"But it's not! That's one of the most crucial points the public has to be made aware of. One of the experimental projects here was a study of the atmospheric conditions–and it proved conclusively that the atmosphere of this world is denser than it was when we first came into the system. The way the various periodicities of its orbit add up right now is causing the polar caps to melt, freeing the gases. The atmosphere's thin and dry compared to what we're used to; but it's breathable. I know; I've tried it."

"For how long–?" Dartagnan felt a sudden constricted panic, at the thought of trying to breathe an alien atmosphere; his hand rose to his throat. "How's that possible? How could there be enough free oxygen?"

"Don't know. But there is; I've been out two, three kilosecs at a time."

Dartagnan looked down, polishing the polish on the worn vinyl of his boot. "You'd have to live underground, I suppose; help to conserve heat. But we do that anyhow. And solar power–it's a lot closer in to the sun. . . ."

"There, you see!" Olefin nodded eagerly. "You're starting to see the possibilities. It's the answer; we had to find an answer, and this is it. This can make your career! With the money I make off of this salvage sale, we can launch a media campaign that'll convert the entire Demarchy. What do you say, Dartagnan?"

Chaim stopped polishing, kept his face averted. "I want a chance to think over what you told me first, Demarch Sekka-Olefin. I still can't really see this place as the Garden of Allah. . . . I'll give you my answer before we lift off, all right?" He realized that the real question he needed an answer to was whether this was what he wanted to do with the rest of his life . . . or whether he really had any choice. But a kind of excitement rose in him like desire, to fill the void Olefin's future had created, with the knowledge that if he sold himself to Sekka-Olefin, he might not be selling out at all.

"Fair enough. . . ." Olefin was saying, smiling as though he already had his answer. ". . . Expect my numerous blood-sucking relations are going to be prostrate with grief when they hear about my plans for this salvage money. They didn't appreciate my spending what was left of the family inheritance on this project; I didn't name that ship out there; they named it, after

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me . . ." He laughed at his own joke.

Dartagnan began a grin, heard footsteps in the hall and felt his face lose all expression again. He drew his aching leg off of the cot, positioned it gingerly on the floor. He stood up, and was suddenly afraid to move.

Olefin leaned past him, pulled a long t-barred pole from under the cot, and held it out. Chaim saw that the ends were wrapped in rags. "Here," Olefin said, "use my crutch. I fell down the goddamned steps in the dark when I first got here."

Chaim finished the grin this time, as Siamang arrived in the doorway, helmet under his arm. Dartagnan's eyes moved from Olefin's face to Siamang's. He realized suddenly that he had made his decision. He bowed.

Siamang bowed to them in return, his gaze shielded by propriety. "I trust I haven't inconvenienced you, Demarch Sekka-Olefin. I'm sure you want to make your repairs and get off of this miserable planet as soon as possible." He chafed his arms through his suit. "My pilot tells me we'll have to lift off before sunset, ourselves; our storage batteries are getting low from trying to maintain temperatures in the ship. But I've got good news—permission to do whatever's necessary to reach an agreement with you about that software." A gleam like a splinter of ice escaped his eyes. Dartagnan tried to see whether his pupils were dilated, couldn't.

"Good, then." Olefin nodded. "Maybe we can discuss business matters further, after all."

"My hope as well. But first—if you don't mind—I would like to take a look at what we're going to be bargaining for."

Olefin looked vaguely surprised; Dartagnan wondered what Siamang thought he could tell simply by looking at program spools. Olefin shrugged. "If *you* don't mind going back out into the 'weather', Demarch Siamang. I've got them aboard the *Esso Bee*."

Siamang grimaced. "That's what I was afraid of. But yes, I'd still like to see them."

They made their way across the shifting, slatey dust to the base of Olefin's landing craft. Dartagnan stopped, staring at the ladder that climbed the mass of the solid-fuel module between jutting pod-feet. His muscles twitched with fatigue, his ankle screamed abuse along the corridors of his nerves.

Siamang looked at his upturned faceplate. "You'll never make it up there, Red." Siamang's voice inside his helmet was oddly unperturbed, and slurred, very slightly. "Don't worry about it, you've got plenty of film footage. Just record the audio . . . and worry about how you'll get back on board our own ship." Siamang's glove closed lightly on his shoulder, good-humoredly, un-

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expectedly. Startled, he watched them climb the ladder and disappear through the lock.

Dartagnan settled on a rung of the ladder, grateful that for now at least the atmosphere was at rest, and kept its own invisible hands off of him. The sun was dropping down from its zenith in the ultramarine shell of the sky; he noticed tiny flecks of gauzy white sticking to the flawless, sapphire purity of blue, very high up. He realized he was seeing clouds from below. He began to shiver, wondered when the others would finish their business, and whether it would be before he froze to death. Their cautious haggling droned on, filling his ears; he began to feel sleepy under the anesthetic of cold . . .

He shook his head abruptly, stood up, waking himself with pain. He realized then that the ghost-conversation inside his helmet was no longer either droning or polite, heard Siamang threatening, "This's my last offer, Olefin. I advise you to take it, or I'll have to—"

"Put it away, Siamang. Threats don't work with me. I've been around too long—"

Dartagnan heard vague, disassociated noises, a cry, a *thud*. And finally, Siamang's voice: "Olefin. Olefin?" Numbed with another kind of coldness, Chaim focused his camera on the hatchway, and waited.

Siamang appeared, dragging Olefin's limp, suited form. He gave it a push; Dartagnan stumbled back as it dropped like a projectile to the dust in front of him, to lie twisted, unmoving. Dumbfounded, he went on filming: the corpse, Siamang's descent of the ladder; the Death of a Dream.

Siamang came toward him across the fire-fused dust, took the camera out of his nerveless hands. He pried the thumb-sized film cassette loose and threw it away. Dartagnan saw it arc downward, disappear somewhere out on the endless blue-gray silt of the plain: His own future, mankind's future, Sekka-Olefin's last will and testament, lost to his heirs—lost to mankind, forever. "That wouldn't have made very good copy, now, would it?" Siamang dropped the camera, stepped on the fragile lens aperture with his booted foot. He picked it up again, handed it back. "Too bad your camera broke, when you took that fall. But we don't hold bad luck against a man, as long as he cooperates. I'm sure I can depend on you to cooperate, in return for the proper incentive?"

Dartagnan struggled to reach his voice. "He—he's really dead?" *No corporation would stoop to murder, Olefin had said . . .*

Siamang nodded; his hand moved slightly. Dartagnan saw the dark sheen of metal. Siamang was armed. A dart-gun; untraceable poison. "I *can* depend on you, can't I, Red? I'd like to keep this simple."

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Dartagnan whispered mindlessly, "I'm your man, Boss . . . body and soul." Thinking, *I'll see you in hell for this; if it's the last thing I ever do.*

"That's what I figured . . . It was an accident, he fell; he was too damned fragile, he'd been in space too long. I never intended to kill him. But that doesn't make much difference, under the circumstances. So I think we'll just say he was alive when we left him. His body'll freeze out here, nobody can prove he didn't fall after we left—if anybody ever even bothers to investigate. Anybody could see he drank too much."

"Yeah . . . anybody." The wind was rising, butting against Dartagnan's body; the dust shifted under his feet, eroding his stability.

"I'm sure you can construct a moving account of our mission, even without film—a portrait in words of the grateful old man, the successful conclusion of our business transaction . . ." Siamang brushed the metal container fixed at the waist of his suit. "Do a good, convincing job, and I'll make it more than worth your while." Dartagnan felt more than saw the aggressor's eyes assess him, behind Siamang's helmet-glass. "What's your fondest wish, Red? Head of our media staff? Company pilot? Maybe a ship of your own? . . . Name it, it's yours."

"A ship," he mumbled, startled. "I want a ship," thinking wildly, *The smart businessman knows his client . . .*

"Done." Siamang bowed formally, offered a gloved hand. Chaim took the hand, shook it.

Siamang's heavy boot kicked the bottom of his crutch, it flew free; Dartagnan landed flat on his back in the dirt.

"Just remember your place, Red; and don't get any foolish ideas." Siamang turned away, started back toward their ship across the lifeless plain.

Dartagnan belly-flopped into the airlock, lay gasping for long seconds, before he pulled himself to his feet and started it cycling. He removed his helmet, picked up his crutch, started after Siamang into the control room. The vision of Mythili Fukinuki formed like a fragile blossom in the empty desolation of his mind; he forced his face into obedient blankness, hoped it would hold, as the image in his mind became reality.

She stood at the panel, arms folded, listening noncommittally to Siamang's easy lies. Chaim entered the cramped cabin, she glanced at him as Siamang said, "Isn't that about all, Red?"

"I guess so, Boss." He nodded, not sure what he had agreed to. He stopped, balancing precariously, as her eyes struck him like a slap.

"I'm afraid that's not all, Demarch Siamang." Mythili pushed away from the panel, set her gaze

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of loathing hatred against Siamang's own impenetrable stare. A small knife glittered suddenly in her hand. "There's the matter of a murder." She gained the satisfaction of seeing Siamang's self-confidence suddenly crack. "I didn't like what I heard when you talked to your father, and so I monitored your suit radio. I heard everything . . ." She looked again at Dartagnan, and away. "And I intend to tell everything, when we get back to the Demarchy. You won't get away with it."

" 'Never underestimate the power of a woman'." Siamang smiled sourly, flexing his hands. "I don't suppose it would do any good to point out that if you turn me in you'll be out of a job; whereas if you were willing to play along, you could have any job you wanted?"

"No," she said, "it wouldn't. Not everybody has a price."

"I didn't expect you would, in any case. But I expect you're getting a great deal of pleasure out of doing this to me, Fukinuki . . . Unfortunately, there's another old saying, 'Never underestimate your enemy'. I'm terminating your services, Mythili. You're not going to get the chance to talk." Siamang produced the gun, raised it.

She stiffened, lifted her head defiantly. "You won't kill me. I'm you're pilot, you need me to get you home."

"That's where you're wrong. As you pointed out to me, Red here is a qualified pilot. So I don't really need you anymore. You've made yourself expendable. Drop the knife, Mythili." His hand tightened. "Drop it or I'll kill you right now."

Slowly her fingers opened; the knife clattered on the floor. Siamang picked it up.

Dartagnan swore under his breath. "But, Boss, I'm not qualified to pilot anything like this—"

"A ship's a ship." Siamang frowned. "You'll manage.

"Chaim—" she turned to him desperately, "—help me. He won't kill us both, he'd never get back to the Demarchy if he did! Together we can stop him; don't let him get away with this—"

"I'll kill you both if I have to, and pilot the ship myself." Siamang's eyes turned deadly; Dartagnan saw the dilated pupils clearly now—and believed him.

"He's bluffing," Mythili said.

Chaim caught her eyes, pleading. "Mythili, for God's sake, change your mind. Tell him you'll keep your mouth shut. Go along with him, it isn't worth it, it's not worth your life."

She looked away from him, deaf and blind.

"Save your breath, Red. I wouldn't trust her anyway . . . she's got too much integrity. And besides, she hates me too much; she'd never change her mind. She's just been waiting for a chance like this, look at her—" Anger strained his voice. "No, I think we'll just

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drop her off somewhere between here and the Demarchy, and let her walk home. And in the meantime—" he moved toward her suddenly, "—we might as well have a little fun." He blocked her as she tried to escape, threw her back against the instrument board, ripping open the seal of her jumpsuit.

"No!"

Siamang turned, held her, struggling, against the panel. Dartagnan glimpsed her face beyond him, the loathing and the fresh, sudden terror; her shining, golden skin. Siamang pulled her away from the board, twisting her arm behind her. "Okay, Red, if you want her first. She's sweet on you anyway . . ." He pushed her at Dartagnan.

Chaim caught hold of her, dropped his crutch, fighting to keep his balance. "Mythili . . ."

She spat in his face, pulling her jumpsuit closed. Siamang laughed.

Chaim let anger show, "Forget it; I'm not interested."

"Don't do me any favors, mediaman—" She was flint-on-steel against him, her outrage burned him like a flame.

He let her go, wiped his face; he said roughly, "Believe me, I'm not doing you any favor . . ." *But, God help me, maybe I'm saving your life—and mine.* He looked back at Siamang, leaned down to pick up his crutch, covering sudden inspiration. "I've got a better idea. Instead of spacing her later, put her out here, now, in a suit with the valve jammed. The sun's going down . . . she'll suffocate or freeze . . . and we can watch, to make sure she's dead. A tragic accident." He felt her anguish, her helpless rage; felt a hot, stabbing pain in his stomach.

Siamang smiled as the possibilities registered. "Yes, I like it . . . All right, Red; we'll do it your way. But there's no reason why I still can't have some fun with little Fukinuki, first . . ." He reached up, began to unbutton his jacket.

"Yes, there is."

Siamang looked at him. "Oh?"

"It's getting late, the ship's batteries are running down. And besides, the wind's rising. If you expect me to get us up out of here safely, I don't want to wait any longer . . . Won't you get enough pleasure watching her die out there—?" Dartagnan's voice rose too much.

Siamang smiled again, slowly. "Okay, Red, you win . . . Get into a suit, Mythili, before I change my mind."

She walked wordlessly past Dartagnan, clinging to the shreds of her dignity; he watched her put on a suit. She fumbled, awkward, made clumsy by gravity and nervousness. Wanting to help her, Chaim stood motionless, turned to stone.

She turned back to them at last, waiting, the helmet under her arm. "All right," barely audible, "I'm ready . . ."

Siamang crossed the cabin to her

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side, reached behind her head to the airflow valve at her neck. She shuddered as he touched her. Dartagnan watched him tighten the knob that shut off the oxygen flow, watched his body tighten with the effort.

"Put on your helmet."

She took a deep breath, put it on. Siamang latched it in place, motioned her toward the lock. She went to it, stepped inside, jerkily, like a broken doll.

"Red." Siamang gestured. "You do the honors."

Dartagnan hobbled to the control plate, counting seconds in his mind. He could barely see her face, staring back at him, saw her mouth move silently, *Damn you, damn you, damn you . . .!* He thought there were tears in her eyes, wasn't sure.

He nodded, whispering, "Goodbye, Goody Two-Shoes. Good luck!" His hand shook; he pushed a button, the door closed.

He turned back with Siamang to the control board, watched the viewscreen, waited. The seconds passed, the lock cycled. She appeared suddenly on the screen, stumbled as the wind gusted . . . fell, got up, fell again as she tried to run, tried to reach the sheltering dome, too far away. The shifting, slate-blue dust slipped under her feet, she fell again, tried to get up, couldn't. At last he saw her try to free the frozen valve one final time . . . and then unlatch her helmet. She raised her head, too far away for him to see her face; he dragged a breath into his own tortured lungs. Her hands rose to her neck, her face; she reached for her helmet again, frantically . . . crumpled forward into the dust, lay coiled like a fetus, lay still.

Dartagnan made himself look at Siamang; looked away again, sick. He sagged down into the pilot's seat, reached for the restraining straps. Siamang turned back from the screen, the obscenity of his pleasure fading to stunned disgust. "Get us out of this graveyard." He moved past Chaim, toward his own padded couch; stopped, turned back. "By the way, this time it was premeditated murder. And you did it, Red. Keep that in mind."

Dartagnan didn't answer, staring at the screen, looking down at the empty seat beside him.

He took the ship safely up through the atmosphere, learning that getting up off of a planet's surface was much simpler than getting safely down. He rendezvoused, docked the shrunken landing module at last within the stretched, arachnoid fingers of the parent ship; he heard his father's voice directing, guiding, encouraging . . . knowing with a kind of certainty that after what he had seen and done below, he couldn't make a mistake now.

On board the main ship again, he moved through the levels to the

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control room, found their flight coordinates already in the computer. Mechanically he took the ship out of orbit, barely conscious of what he did; as he turned away from the panel Siamang congratulated him, with apparent sincerity. Dartagnan pushed on past, wordless, ducked into the aluminum-ringed well. He reached Mythili Fukinuki's cabin door, stopped himself, and with a sudden masochistic urge, opened it and went inside. He slid the door shut, drifted to the bed, pulling off his jacket, his shirt, one boot. He forced his aching body into the sleeping bag, settled softly, mumbling, "Good luck, Goody Two-Shoes . . . good luck . . ." And finally, thankfully, he slept.

When he woke again his face burned under his touch, his ankle was hot and swollen inside his boot. He went down into the commons, forced himself to eat, found a bottle of antibiotics and swallowed a handful of pills heedlessly. Then he went back to the cabin, locked the door, and slept again.

He repeated the cycle four more times, avoiding Siamang, before his fever broke and he remembered to check the ship's progress. He made minor alterations in their course, lingered at the screen for long seconds, searching the darkness for something he would never find. Then he tried to use the radio, and was deafened by a rush of static. He realized that Siamang had done something to the long-range antenna while he slept; there would be no more radio contact until they were back within Demarchy space. He checked the chronometer: less than half a megasecond of flight time had elapsed; even without the added mass of the propellant tanks they had carried on the way out, more than three megaseconds still remained.

"How's our progress?"

He turned and found Saimang behind him. "Fine, as far as I can tell." His own voice startled him, unexpectedly.

"And how's your conscience?"

Dartagnan laughed sharply, nervously. "What conscience?"

Siamang smiled. Dartagnan risked a look straight into his eyes. They were clear, the pupils undilated; he wondered whether that was good or bad. "I wondered whether you might be suffering the pangs of remorse; you're not looking too well." Faint mockery, faint disapproval . . . faint suspicion.

Chaim scratched an unshaven cheek, cautiously expressionless. "Only the pangs of a fall down stairs." He glanced down at his unbuttoned jacket, the cheap, bedraggled lace on his half-tucked-in shirt. He looked back at Siamang, flawlessly in control, as always. He raised his hands, "I was just going to go clean myself up," and retreated.

Seconds sifted down through the hourglass of time, the ship moved

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through the darkness, slowly gaining speed. The casual persecution Siamang had inflicted on the trip out grew more calculated now, and more pervasive; until Dartagnan began to feel that Siamang only lived for his personal torment, a private demon sprung from his own private hell. He lived on soy milk, as the chronic tension exacerbated his ulcer; he began to lose sleep, as Siamang's probing found the hidden wounds of his guilt. He felt the armor of his hard-won, studied indifference wearing thin, wondered how much more he could stand. And he wondered what pathology drove Siamang to methodically destroy the loyalty of the only "witness" in his own defense . . .

Until suddenly Dartagnan saw that it was no pathology at all, but a coldly rational test. In spite of what he was, in spite of everything, Siamang didn't trust him . . . and unless Siamang was completely convinced of his cowed submission, and his totally amoral self-interest, there might be a third Tragic Accident before the end of this Odyssey of Lies and Death. They were safely on a homeward course; he was entirely expendable again. Three deaths might be hard to explain, but Siamang had the means to sway public opinion at any trial—as long as there was no one to testify against him.

His sudden comprehension of his danger steadied Dartagnan on the tightwire he walked above the abyss of his desperation: He would endure anything, do anything he had to do; there were only two things that mattered now—his own survival, and the reward that he would have earned a thousand times . . . Not a ship, not his freedom, but the knowledge that Siamang and Sons would pay. They would pay to bring Mythili Fukinuki back to the Demarchy; they would pay for Sekka-Olefin's death . . . they could never even begin to pay enough, for what they had done to Heaven's future.

And so he endured, ingratiating, obedient, and smiling—always smiling. He lived for the future, the present was a darkness behind his eyes; he was a man on a wire, above the starry void between the past and their destination. And in the refuge of his cabin, he found the private world of Mythili Fukinuki, in a chest filled with books and papers. Ashamed at first, he rummaged through them, finding the precise impersonalities of astrogation manuals . . . and books on poetry and philosophy, not only recent but translations into the Anglo from all the varied cultures of their heritage on Earth. Passages were marked with parenthesis, question marks, exclamations; her own thoughts held communion in the margins of the shining plastic pages or spilled over, filling notebooks.

He began to read, as she had read, to fill the empty stretch of

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time. He felt her presence in everything he read, in each small discovery; beyond anger or bitter grief, she gave him comfort, brought him strength . . . And he understood at last that he had hated prospecting because he hated loneliness; that because of his resentment, being with his father had been the same as being alone. But he saw himself on his own ship, imagined Mythili Fukinuki as his partner—and knew he would need nothing more, need no one else, to be content . . . A much-opened book of poems fell open again in his hands, and he saw her plain, backslanted writing in a margin: *It will be lonely to be dead; but it cannot be much more lonely than it is to be alive . . .*

He found a grease pencil in the sack of his belongings, and slowly, as though there was no strength left in his hand, wrote *Yes, yes, yes . . .* The vision of her coiled form, the swirling dust of Planet Two, choked his memory; he snapped the book shut. *No, I wasn't wrong!* He put the book carefully into his sack, and after that he stopped reading.

But he realized then that if he was wrong, if he was as guilty as Siamang himself . . . if Mythili Fukinuki had died because of him, then even if he survived to give testimony, it would only be his own word against Siamang's, and that might not be enough. Siamang had influence; he had nothing—he had no proof, without Mythili. And if she was dead, he had to be certain that Siamang would never get away with it. Somehow he had to find a way to make Siamang incriminate himself. But his camera was ruined, the radio was out; he didn't even have a tape recorder on him . . . or did he?

He got up silently, and slipped out of the room.

They were well within Demarchy space; one hundred kiloseconds remained before they would dock at Mecca. Dartagnan made radio contact at last, as Siamang looked on, and set up a media conference for their arrival. One hundred kiloseconds . . . and still he had no proof.

"Come on, Red, let's celebrate our impending return to civilization." Siamang gestured, smiling openly, without sarcasm. "God, it'll be a relief to get back to the real world! This whole damned thing is an experience I only want to forget."

"The same here, Boss. The sooner the better." Dartagnan followed him below, humoring his apparent good humor. Chaim drank soy milk cut with water, trying to lull the chronic spasms of his stomach; Siamang drank something that he assumed was considerably stronger. But Siamang's mood stayed easy and congenial, his conversation rambled, innocuous, clever, only slightly condescending. ". . . join me in one drink at least,

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Red—" Siamang slid one of the magnetized drink bulbs across the metal surface of the table. "How much can it hurt?"

"It hurts plenty, believe me, Boss. I'd like to, I would; but I just can't take liquor."

"It's not vodka." Siamang's tone turned conspiratorial, and sharpened slightly. "I want you to have a drink with me, Red. I won't take no for an answer."

"No, I'm sorry . . ."

"Come on, drink it." Siamang laughed; Chaim felt his stomach tighten. "Do it—as a favor to me."

Dartagnan hesitated, toying absently with the wide metal band that circled his throat beneath the high collar of his jacket. "All right, Boss; just one . . . if you'll do me a favor in return?"

Siamang started. "What did you have in mind?"

"I want my payoff now. I want you to give me a corporate credit voucher for the value of my scoutship."

Siamang frowned. "I'm willing to transfer the credit to your account directly—"

He shook his head. "Sometimes direct credit transfers don't—get registered. I want it in writing before I do my bit to keep you clear of that murder."

Siamang's frown deepened, lifted slowly. "All right, Red . . . I'll humor you. I don't expect you'll let me down if I do; since you're in this as deep as I am, and you'll go right down with me—" He went out of the room.

Dartagnan sat staring uneasily at the cup, *What the hell; it hasn't done anything to Siamang* . . . He turned the metal collar slowly around his neck. *Damn it, it's worth a bellyache; it's worth anything, to be sure I get what I need.*

Siamang returned, passed the voucher across the table to him. "Is that satisfactory?"

Dartagnan took it in his hands, like a starving man holding food. For a second the realization of what that money could mean to his own future rose into his mind, and made him dizzy. "Yeah," he said hoarsely, "that's just perfect." He folded it and stuck it into his boot. He lifted the drink bulb from the table, "I'll drink to that." He pulled up on the straw, and drank.

He tasted nothing, only the bland sweetness of pear juice; he went on drinking, surprised, finished it.

Siamang drank with him, smiled. "What are you going to do with a ship, Red? You mean you really don't enjoy being a garbage man to humanity?"

"I've recycled just about all the garbage I ever want to face, Boss. Just about all I can stand . . ." He squinted; the light glancing up from the tabletop hurt his eyes: *Come on, that's impossible* . . . suddenly afraid that it wasn't.

"Going to be a prospector, like Sekka-Olefin?"

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He looked back at Siamang. "Not like Sekka-Olefin. He—made a mistake." Siamang's voice set his teeth on edge; his skin prickled, he began to feel as though his body was strung together on live wires. "Just like my old man . . . I'm not going to make that mistake." *Shut up!* He shook his head, the light broke up into prisms.

"What mistake was that, Red? What mistake could there be that a man who'd go into your profession hasn't made already?"

Chaim almost shouted it, shaking with uncontrollable rage. He choked back the words, gagged on sudden self-loathing . . . *Why isn't Siamang feeling it?* And then he realized that Siamang hadn't been drinking anything at all, except fruit juice. Siamang was entirely sober; and he had been given one last test . . .

Mecca city opened around him, vibrant, brilliant, beautiful, an alien flower . . . his mind sang, a choir of voices, the voice of the city, eternal life. He cupped life in his hands and drank . . . life streaming through the prism of his fingers in rainstars of light. He was eternal, he laughed, inhaling the city-fragrance of sound, chords of cinnamon and cloves, leitmotiv of gardenia . . . of corruption . . . a fragrance growing, that deafened him, shattering his ears, shattering his soul like crystal, shattering the crystal city . . . A cloying stench of decay clogged his nose, his mouth, his lungs, like slatey dust; the fragile towers withered, fading, shriveling around him; like bodies decaying, betrayed . . . death was eternal, only death: and her face, all their faces turned to him, turned to ruin, worm-eaten, rotting, decayed . . . *I know you . . . Mythili, I know you* . . . he had no voice . . . *I know you aren't! . . . I know you . . .* He heard her sobbing, like flowers, crystal acid-drops eating away his viscera like decay, *I don't want to! I don't want to die . . . I want to live . . . I have to . . . want to live* . . . Cradled in the arms of death, worm-riddled, he saw his flesh rotting, falling from his bones . . . and it was the end, the end of the world . . .

Dartagnan woke, moved feebly on the floor in the bathroom of his private cabin, trying to remember how he had gotten there, why he had eaten hot coals . . . why he was crying. He lay still, too weary to move, listened to the grating whine of a fan . . . the exhaust fan. He remembered, then, being sick to his stomach. He touched his face, filmed with wetness, sweat and tears—and vomit: God, he hadn't done a very clean job of it. He pushed himself up, drifted to the wash basin to shut off the fan. He saw himself in the mirror, shut his eyes instead, swore in a fury of humiliation—

Siamang. He reached down,

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dragged his boot off, swearing again as he wrenched his still-swollen ankle. But he laughed in satisfaction as his hand closed over the crumpled, drifting prize, the credit voucher. *Still there* . . . He tried again futilely to remember what else had happened; knowing that Siamang had drugged him for a reason, and that he could have said anything, *would* have said anything, and anything could have been the wrong thing. But he had the voucher; and he was still alive—A flicker of nightmare, a discontinuity, shook him; he ran his hands down his body in sudden fear. He was still alive. The metal collar was still around his neck; he had what he needed. Maybe, just this once, something was going to come out right. . . .

He stripped, went to the shower, sealed himself in along with his ruined clothes, and turned on the water. He let it run, heedless of the waste, through three full shower cycles, an entire kilosecond, until he finally began to feel clean. Life, and—almost—self-respect, stirred sluggishly in him again as the heat lamp dried the sheen of water from his skin, baked the shame and the last of the stiffness out of his mind and body. He shaved, did what he could with his clammy clothes, put on the one fresh shirt he had saved for their return to Mecca. Appearance was everything; he had to present a good appearance, when he faced himself in the eyes of the media cameras. . . . He investigated his ankle; the brown skin was still splotched with ugly bruises, but it was healing, slowly, with the passing of time. He forced it back into his boot, polished both boots with his dirty shirt. He thought about other wounds, and wondered how much time he would need before those were healed as well.

"Dartagnan—?"

He heard Siamang rap on his door, quietly, and then more loudly. He went to it, opened it, his face set. Siamang stared; Chaim wondered whether he was staring at the neatness of his clothes, or the haggardness of his face. "What do you want?"

Almost diffidently, Siamang held out a drink bulb; Dartagnan grimaced. "It's just milk; you can believe it. Look, I'm sorry about what happened to you, Red. I shouldn't have given you that big a dose, I didn't think about your not being used to it—"

The hell you didn't, Dartagnan thought.

"—I want you to know I'm sorry. How do you feel?"

"Like I'll be glad when I can forget it. How much time's left before we reach Mecca?"

"That's why I knocked—only five thousand seconds. Are you going to be able to bring us in all right?"

Dartagnan almost smiled, realizing the reason for Siamang's sudden solicitude. "I think so. I hope so." He moved out into the hall,

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hesitated, trying to make it sound casual: "I hope I didn't–say anything I shouldn't have, Boss. I . . . don't remember much about it."

"You told me you hated my stinking guts, Red."

He froze. "I'm sorry, Boss, I didn't mean it, I didn't know what I was–"

Siamang grinned forgiveness. "It's all right, Red. I don't blame you at all. In fact it's just what I wanted to hear . . . I wanted to hear you say what you really thought, just once. Because you also said that I'd given you what you wanted, and that was all that mattered. I know I can trust you now, Red; because I'm sure we understand each other. Isn't that right?" Mockery traced the words. His hand struck Chaim's shoulder lightly.

Dartagnan smiled. "Sure, Boss. Anything you say."

Dartagnan watched the elongated crescent of the asteroid Mecca grow large on the viewscreen, and gradually eclipse as he maneuvered them into its shadow. Siamang hung behind him, watching; oblivious, Chaim watched only the intricate, expanding pattern of strangely-familiar ground lights below them. He began to pick out ships--the tankers like gigantic ticks, bloated or empty; the small, red-blossoming tows. He listened to the disjointed, disembodied radio communications, almost thought he could see the ships making way for him. He spoke calmly to the ground controller, explaining who he was, and boosted the response for Siamang to hear: the encouragements, the welcomings–interspersed with the terse, anxious coordinates to guide an inexperienced pilot down to the bright, scarred surface of the docking field. Their ship closed with the real world; Dartagnan felt the slight, jarring impact of a perfect landing rise through its structure. In his mind he compared the slow ceremony of docking to the terrifying urgency of their descent to the surface of Planet Two . . . remembered sharing the pride of a job well done. For half a second, he smiled.

The field was curiously empty, their helmet speakers strangely silent, as they disembarked at last and made their way along a mooring cable toward the exit from the field. One guard met them, greeting Siamang with deference, cleared them to pass downward through the airlock into the asteroid's heart.

"Where the hell is everybody, Red? My father should be here, where's our media coverage?" Siamang's voice frowned. "I thought you radioed ahead about our arrival."

"I did, Boss; you heard me. They must be waiting for us inside." *They've got to be . . .*

They were: Dartagnan followed Siamang along the corridor that

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dropped them inward from the surface, his broken camera floating at his shoulder, and saw his fellow mediamen clustered in wait on the platform at the city's edge. A surprisingly sparse crowd of curious onlookers, surprisingly quiet, bumped and drifted among them. *Awed . . .?* he thought. He wondered if Siamang's rivals among the distilleries had kept their workers away; the irony pleased him, but not, he noticed, Siamang.

He watched the crowd flow forward to meet them, let it surround him, letting the mediamen get it out of their systems, "Demarch Siamang . . . Demarch Siamang . . . Hey, Red—?" He glimpsed the city, past and through them . . . a kilometer in diameter, towers trembling faintly, glittering in the shifting currents of air. Colored plastic stretched over fragile frames filled every square meter of ceiling, wall, floor, here where gravity was barely more than an abstraction: A man-made tribute to the magnificent generosity of nature, and the splendor of the Heaven Belt. The splendor made sterile because nature had turned its back on man; man the betrayer, who had betrayed himself. Chaim saw Sekka-Olefin's future, in a sudden, strobing nightmare of horror overlying every crystal-facet wall, every stranger's face that closed in on his own . . . *My God . . . my God . . . And I'm the only one who knows!* He steadied himself, inhaling the spices of the scented air, summoning strength and resolution.

And then he raised his hands, raised his voice into the familiar singsong of a media hype. "Ladies and gentlemen . . . my fellow Demarchs . . ." Silence began to gather. "I'm sure you all know and recognize Demarch Siamang. But there's a side of him that none of you really knows—" he stretched his silence until the silence around him was absolute; every eye, every pitiless camera lens was trained on him where he stood, with Siamang complacently at his side. He took a deep breath. "This man—is a murderer. He went four-hundred-million kilometers to Planet Two, to save Kwaime Sekka-Olefin, and wound up killing him instead, over that box of—stolen—computer software you see there in his hand." He turned, bracing, saw Siamang's face, the perfect image of incredulous amazement.

Siamang's eyes were blank with a fury that only he could read. "This man is a psychotic. I don't have any idea what he's talking about. I obtained this salvage from Sekka-Olefin in a legitimate business transaction; and he was perfectly alive when we left him—"

A stranger pushed forward, touched Dartagnan's arm; amber eyes demanded his attention, assured, analytical. "Are you Chaim Dartagnan?"

Chaim nodded, distracted; Siamang broke off speaking abruptly,

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"Who the hell are you?"

"My name's Abdhiamal; I'm a government negotiator . . . Demarch Dartagnan, what evidence do you have to support your charge?"

"Now, listen, Abdhiamal—" Siamang interrupted, indignant. "No one needs any government interference here, this is simply a—"

"Demarch Dartagnan has the floor," Abdhiamal said evenly, his eyes never leaving Chaim's face. "You'll be permitted to speak in turn. Dartagnan?"

Dartagnan almost laughed; triumph filled him, overwhelming gratitude made him giddy. He kept his own eyes on the media cameras—his damnation, his salvation, his weapon . . . "He got hold of my camera, I don't have the recording of the murder. But he bribed me, to cover the whole thing up . . . this's the corporate credit voucher, made out to me—" He spread it between his hands, held it out to the thousands of hungry eyes behind every camera lens.

"That's a forgery."

"And this—" Dartagnan pulled open the collar of his jacket, "—is a recording of the transaction." He twisted the jury-rigged playback knob on the note recorder he had ripped out of his spacesuit; he heard his own voice, ". . . I want it in writing, before I do my bit to keep you clear of that murder." And Siamang's, "All right, Red."

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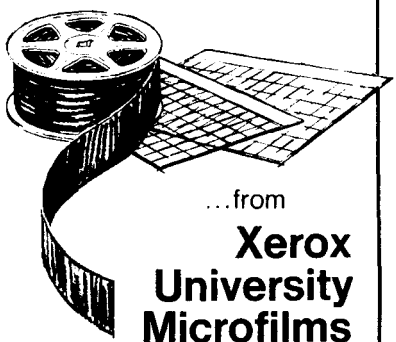

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"That was an accident!" Siamang's voice slipped out of control. "I didn't mean to kill Olefin, it was an accident—But ask him about Mythili Fukinuki, ask him about our pilot: That was no accident. He murdered her in cold blood; there was nothing I could do to stop him. He's a madman, a homicidal maniac—"

"Mythili Fukinuki's not dead." Dartagnan turned to watch for the second it took to register on Siamang's face. He smiled; he turned back again to Abdhiamal, was surprised at the surprise he found in the amber eyes. "At least . . . I don't think she is. When I was alone with Sekka-Olefin, he claimed a human could survive in Planet Two's atmosphere; he said he'd breathed it himself. Siamang wanted to space her, because she overheard Olefin's murder . . . I told him to put her out on the surface instead. He was on drugs, I couldn't stop it or he would've killed us all. It was the only thing I could think of . . ." Ashamed, he looked down, away from the memory of her face, *'Damn you, damn you'* . . . "If I was wrong, if she died, then I'm just as guilty as he is; the Demarchy can do anything they choose to me, I deserve it. All that matters to me now is that somebody made it back, to tell the truth. And to see that Siamang and Sons pays to get her home—because I don't believe that she is . . . dead . . ." A sudden reaction took away his voice. "Has there . . . have you heard of any radio messages being received? Is there any word?"

"Better than that, as far as you're concerned." Abdhiamal smiled, without amusement. "Mythili Fukinuki returned to the Demarchy before you did, in that prospector's ship. She reported everything that happened . . . except the fact that you weren't actually trying to kill her, Dartagnan."

Dartagnan laughed incredulously. "My God, she would . . . she would!"

Abdhiamal smiled again, at something on Dartagnan's face. "As far as the Demarchy's concerned, your testimony leaves it up to her whether she wants to press her charges of attempted murder against you. But with a confession, and both your evidence and hers, I'd say the case against Demarch Siamang is a little more clear-cut . . . You see, Demarch Siamang," he looked back, "this isn't a news conference; consider it more of a preliminary hearing. The Demarchy had already been informed of Demarch Fukinuki's testimony and evidence before you arrived; your father is being considered as an accomplice, pending further questioning. All we needed was your version; and we have got that, now."

Never underestimate the power of a woman . . . Dartagnan grinned, weak in the knees. He noticed that

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Siamang was ringed in now by "spectators"; vigilantes, volunteer police requested for the occasion. Siamang's eyes raked them with disdain. "This is an outrage. This is entrapment—" He looked back at the cameras, "People of the Demarchy, are you going to stand by while a fellow Demarch is persecuted by the government?"

"The people asked me to come here, Siamang. Save your rhetoric for your trial; in the meantime, consider yourself confined to your home . . . And I'll take charge of the software—" Abdhiamal held out his hand: Chaim recognized a kind of gratification on the government man's face; realized that Abdhiamal was hardly older than himself, behind the mask of his self-assurance. In the Demarchy, a government agent earned less respect than a mediaman; and had considerably less influence.

Siamang passed the container to him, entirely in control once more. He faced Dartagnan again, at last; Dartagnan tried to read the expression behind his eyes, couldn't. Siamang reached out abruptly, caught Dartagnan's arm, jerked the voucher out of his hand. Chaim watched him tear it up, watched the pieces drift as they sought the lines of gravitational force. "You'll never have a ship now, Red." A final mockery showed in his eyes, traced his voice. "But I hope you never stop wanting one, so you'll never stop hating yourself for this."

Dartagnan smiled, filled with a terrible pride; smiled with a sincerity he didn't know he still had in him. He shook his head, met the aggressor's eyes at last. "Believe me, Boss, I never wanted a ship, or anything, half as much as I wanted to see this happen . . . to see truth win out in this lousy business, just once, because of me." He turned the smile on the cameras, and on the men behind them.

Siamang's escort led him away, to the rim of the ledge where an airbus waited. The handful of mediamen swarmed after them, onto the bus, into air taxis; Dartagnan stared at the bobbing mass of striped canopies, whirring propellers. The remaining crowd of strangers around him began to disperse, drifting over the ledge into the city, leaving him alone with Abdhiamal. "What about me?"

Abdhiamal shrugged. "You're not going anywhere, are you? Your further testimony will be needed when they call a trial; somehow I expect you'll want to be there. I'd hate to see Siamang promo his way out of a guilty verdict now—"

Dartagnan frowned. "He won't, will he—?"

"I doubt it. Public opinion's had too much time to build against him. His father couldn't do much to help him, because he didn't know enough about it . . . You know, your fellow mediamen seem to be a lot more interested in the murderer than in your having ex-

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posed him." Abdhiamal looked at him.

Dartagnan grinned weakly. "It figures . . . I just paid 'em the biggest insult I could think of. Besides, a mediaman follows the smell of power . . . it smells like money, in case you're interested." He leaned down, picked up a corner of the ruined credit voucher. The full impact of what he had given up caught him like a blow. "Easy come, easy go." He laughed, painfully, embarrassing himself. "That reminds me—what about the software, the salvage: what happens to Sekka-Olefin's money, now?"

"The artifacts will be sold at a public auction; Siamang and Sons being disqualified from bidding, of course. Sekka-Olefin's relatives have put in claims against it; the money will be distributed among them, since he didn't leave any will stating what he wanted done with it."

"But he did! He told me what he wanted done with it. He didn't want it to go to his relatives; he wants it used to establish a colony on Planet Two, against the time when the Demarchy's not habitable anymore—" Chaim broke off, realizing how it sounded.

Abdhiamal looked at him, tactfully noncommittal. "Do you have any proof of that?"

"Yeah. Every word of it, on film . . . at the bottom of a well. A gravity well—" He swore. "His goddamned relatives'll never listen. He was right! And it all went for nothing, because of Siamang." He saw the crystal city through a haze of death, knew he would have to see it that way for the rest of his life: the towers decaying, the fragile thread of life coming apart. "That stinking bastard . . . I hope they vote to space him. Because that's what he's done to their future, and they'll never even know . . ." His voice shook, with bitterness and exasperation.

"At least you've done something to try to make it up to him—" The voice wasn't Abdhiamal's.

He turned back, incredulous. "Mythili?" She stood beside him, materializing out of the diminished crowd; Abdhiamal had moved away, discreetly. "Mythili." He started toward her, she pushed away, out of his reach. He stopped, pulled in his hands. "Sorry . . . I'm just . . . I'm glad. Just glad to see you." He noticed the patches of pink, healing skin on her cheeks and nose. "Are you all right?"

She nodded. "Some frostbite. Some burns, from the cold. I was a mess for a while. But I'm fine."

He nodded too, unthinking. "I'm glad. The old man was right, then—Sekka-Olefin. He told me that it was possible to live—"

"I know." She looked down abruptly, rubbed her eyes with the back of her hand. "I heard you."

"Do you believe it?"

She still looked down. "Yes . . . yes, I believe you, now, Chaim. But

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why did you *do* it? We could have stopped him; you could have—"

"—gotten us both killed?" Shame kindled anger, "Why didn't you just keep your mouth shut, like I did; everything would've been okay."

Her eyes flashed up. "Because I'm not like you! . . . I know, it was stupid, I know that now . . . But I couldn't have hidden it anyway; he would have known. I'm not good at hiding what I feel—" She bit her lip. "I'm not like you, Dartagnan."

He let his breath out slowly, said stupidly, again, "I'm just glad you're all right . . . I saw you, on the viewscreen, saw you take off your helmet. And then I thought I'd been wrong, that you—"

"I thought so, too." She laughed, tremulously, at the ghost of memory. "The air was so thin, so cold, I thought I couldn't breathe. I panicked, and I blacked out. The noise and heat when you lifted off saved me, it woke me, or I would have frozen to death instead. I almost didn't get up again . . . I thought I'd already died."

"You repaired Olefin's ship?"

"Yes . . . It's a good ship, a fantastic ship; he must have spent a fortune—"

"He did. Literally. On a dream."

"I brought his body back: a pleasant companion, for a trip of three-plus megaseconds." She shuddered. "Three and a quarter megaseconds, with a dead man, and frost-burned lungs, and memory . . . God, how I hated you, Chaim! How I hated you . . . and yet—" She wouldn't look at him.

"I know," he said, "I know. Three and a half megaseconds with Siamang, and memory; wanting to kill him, and afraid he'd kill me. But you were there, I could feel you, helping me get through. Helping me survive to make it right. I always planned to tell the truth, Mythili, I never meant to do anything else."

"So the end justifies the means, then?" Her voice teetered on the edge of control.

He didn't answer, couldn't.

"I won't press charges against you." She turned away.

"Mythili. Don't go yet—" She

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in times to come Spider Robinson leads our November issue with a powerful novella, "By Any Other Name," that is definitely not a Callahan's Bar story. James Oberg talks about UFO's (Unidentified Fraudulent Objects), Margaret Silbar explains Magnetic Monopoles, and Rinehart Potts gives us a Guest Editorial called, "Economic Scofflaws."

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looked back at him, he groped for words. "What . . . what will you be doing now? Are you still working for Siamang and Sons?"

"No. Siamang, senior, fired me, after I made my accusations." She almost smiled, not meaning it, "I'm hoping one of his competitors will offer me a job . . ." hopelessly. "So you won't have a ship of your own, now, either—?"

"No." He looked down, at the torn corner of the voucher still wadded in his hand. "Not now . . . but someday, I will. And when I get it, I want you to be my partner. I want you to—to—" *To stay with me.* His mind, his eyes, finished it, uselessly.

" 'Good-bye, Goody Two-Shoes'," she whispered. She shook her head. Her own eyes were mirrors of memory, for the face of a man who had tried to kill her; a man who had lied too well. "I might forgive you . . . but how could I ever forget?" An anguished brightness silvered the mirror of her eyes, she turned away again.

"Mythili, wait!" He fumbled in the sack of his belongings, pulled out the book of poetry. "Wait; this belongs to you." He held it out.

She came back, took it from his hand without touching him. Confused anger startled her face as she recognized the title. "What are you doing with this?" pain and grief, "Shiva, isn't there anything that you wouldn't pry into? You'll never have a ship! You'll be a mediaman all your life, because that's all you were ever meant to be." She might have said "whore."

"I will get a ship. If it takes me the rest of my goddamned life, I will . . . And when I do, I'll find you! Mythili—"

She didn't turn back, this time. He saw her hail a taxi, get in; watched it fall out and down into the vastness of the city air. Pain knotted his stomach, he clenched his teeth.

"Dartagnan—" Abdhiamal came up beside him, eyes questioning, sympathetic. "No?"

"No." Chaim produced a smile, pasted it hastily over his mouth. "But that's life. The only reward of virtue is virtue . . . the hell with that." He picked up his sack, readjusted his camera strap. "You can't afford it, in my business . . . Good thing my camera's already broken; one of my good buddies will probably smash it over my head when I get back to work. Nobody likes an honest mediaman; you can't trust 'em."

Abdhiamal smiled. "I disagree."

Dartagnan laughed, still looking out into the city. "Everybody knows you've got to be crazy to work for the government." His eyes stung, from too much staring.

"You look like you could use a drink. On me?" Abdhiamal gestured toward the city.

"Why not?" Dartagnan nodded, hand pressing his stomach. "Yeah . . . that's just what I need." ■

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altruism, evolution, and society

Is altruism a **genetic** trait? And is the survival of this specific gene necessary for the survival of civilization?

Thomas A. Easton

The human species is in trouble. Its survival is threatened. It is being swamped by its own numbers and poisoned by the products of its activities. It needs saving.

But the saving is not a simple matter. It cannot be done solely by technology or solely by law, for the trouble comes from deep and fundamental roots. It springs from our nature as a social animal, and it must be attacked on that level.

The kind of attack that will work is not easy to describe, but a few hints can be drawn from Edward O. Wilson's fascinating monograph, *Sociobiology: The New Synthesis* (Harvard University Press, 1975). These hints may be difficult to accept, for Wilson's book is based on the so far unproved proposition that social behaviors are determined by the genes, but they are well worth considering. They may offer our only out short of a Skinnerian autocracy.

Society arises from sociality, a propensity or leaning that goes with society the way aggressiveness goes with war. It is possible to say

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that sociality arises from the ability to communicate and coordinate the way aggressiveness arises from teeth and claws and weapons, and that it in turn gives rise to ordered patterns of group behavior—which we call "society"—the way aggressiveness gives rise to such rules of combat as chivalry and the code duello.

It is sociality that distinguishes the social animals from the nonsocial animals. Because this is so, it seems obvious that sociality must reflect a genetic difference between the social and nonsocial animals, for it appears—as in the insects—where there is no possibility of a difference in learning or culture. It is only within a single species, such as our own, that differences in social behaviors may be due to differences in environment, and even there the genes may play a role.

Society is the expression of sociality. It is not subject to the forces of natural selection, but rather to the forces of a psychological and historical selection. It is an institution, not a biological trait, and it is therefore labile. Most of us are no longer hunters and gatherers, but disaster could cause us quickly to regress. Society, within broad limits, is changeable; sociality is not. Whatever happens to us, we are always left with our need for some kind of society.

This need for society is a basic trait of human beings. It is shared with many other members of the animal kingdom, but by no means with all. Many animals live apart, and if they do show a rudiment of sociality, it is connected solely with the needs to mate and raise their offspring.

The social animals, however, have certain advantages over the nonsocial ones. Their groups offer a better defense against predators. The group is both more likely to see an enemy in time to flee and more likely to fight it off. The individual group member is more anonymous, so that a successful predator may pass up the one and take another.

The group is also better able to protect its food supply and living space by driving off competitors of the same and different species. It enjoys an increased feeding efficiency, both because the group can scare up and catch more game and because the group includes elder members with a memory of past food locations. Its reproductive efficiency is greater, for its members help each other in caring for the young and the massing of individuals in the group makes it easier for each to find a mate. It even modifies its environment to make life possible.

The members of a social group thus aid the survival of each other and their offspring, and in so doing they make their population far more stable than that of their nonsocial relatives. They enjoy security against extinction, while the work-

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ings of such social behaviors as dominance and territoriality often limit reproduction to the available resources. As a group, they are more fit than their nonsocial fellows.

It is difficult to see how sociality might have evolved if we understand evolution only in terms of the individual. The common view that natural selection affects only the individual is not fruitful, for though it can explain the evolution of all the traits that favor the survival of the individual, it cannot explain the evolution of traits that do not—and social traits often seem to cost the individual its chance of life or reproduction.

An animal that spends energy to raise an orphan spends energy which it might need for its own survival. The individual who stands watch for his group is more exposed to predators. A mother bird who feigns a broken wing to lead a predator further from her nest exposes herself to danger. A human who dives into a lake to rescue a drowning person runs a serious risk of death. An animal, such as an ant, bee, or African wild dog, who shares the food it finds, runs the risk of keeping less than it needs in a time of scarcity (though in a time of plenty, it can devote its time to nest building or raising offspring and still be fed). Social behavior can almost be defined as behavior which increases another's probability of survival more than one's own. And its evolution can be explained only if we look at more than the individual.

An example may be appropriate here. If the environment offers little food, an "every man for himself" strategy might seem best, with every member of the animal population searching, finding, and monopolizing whatever food it can. But the uses of society are clear: A flock of cattle egrets is more successful than a single bird at stirring up insects; the group has a memory of food locations that the single animal does not; and the group is safer from predators. Obviously, however, the food supply can be too sparse to support more than one or a very few individuals, and if the social group cannot disperse when necessary, all will die. Sociality is an adaptive behavior up to a point; beyond that point a certain flexibility is also required.

That social behavior *does* evolve is Edward Wilson's major premise. There are those who argue with him, for the idea is unattractive to anyone who believes for instance, that all the differences between the races of humanity are due to culture and learning. But they look at differences between the members of a single species, and Wilson looks at the differences between species. He compares what is common to all the members of one species with what is common to all the members of another. He points, describes, and demonstrates his premise.

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In the process, Wilson points to four pinnacles of social evolution. The first is represented by the colonial invertebrates, such as the corals, in which a colony of animals is produced as a single founder buds offspring from its own body, and they do the same in turn. The offspring remain connected to their parents by filaments of tissue, and they may specialize to serve various functions, as claws, tentacles, or stomachs. The specialization is as organs of a single superorganism, and the cooperation of the colony/society members is as perfect—and as obligatory—as the cooperation between the cells and organs of the human body.

The second pinnacle is represented by the social insects, the wasps, bees, ants, and termites. The specialization is no longer one of organs, for the members of the insect colony are not physically connected to each other. They are, however, linked to each other by bonds of communication—largely via odors, so that the individual can address only the group—and their cooperation is one of rigidly defined roles, or castes. The individual is worker, soldier, or queen for all of its short life. Its activities can vary to a very limited extent with age and the needs of the colony—a worker bee can forage for pollen and nectar, build comb, or tend brood—but only within the definition of its caste. Only in such dire emergencies as the death of a queen can a worker cross its caste boundary to become fertile and fill the gap, and then only in a few species.

The social insects represent a quantum leap in flexibility and independence above the colonial invertebrates. It is true that the colony structure is essential to the individual's survival, but the individual can survive for a while on its own. It is also true that although the individual occupies a distinct niche in the colony, it has some freedom to change. It is therefore at least a little strange that the social insects were historically the source of the idea of the social superorganism. The colonial invertebrates fit the metaphor more accurately, and the more advanced pinnacles of social evolution are successively further removed from any organismal likeness. The nonhuman mammals, the third pinnacle, are even more capable of diversified behavior than the social insects, for they replace rigid castes with variable roles—as in the rotation of watchmen in a baboon troop—and make communication more effective by an order of magnitude or more. Not only do they use more communicative signals, but they also add the capacity to recognize individuals and direct their messages to them instead of only to the group.

The fourth pinnacle is occupied only by human beings, who differ from other mammals by being

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more able to recognize other individuals (they have better brains), to communicate more effectively (they use language instead of signals), and to play more roles. The human individual is more independent than any other individual social animal, and humans illustrate best of all the trend toward a capability for more diversified behavior by individuals and groups in social evolution. This trend seems, however, to be accompanied by a decrease in some of the marks of sociality—cohesiveness and cooperation—from the ultimate level of the colonial superorganism. This decrease translates as an increase in the amount of aggressiveness displayed between the members of a society, even to the point of actual discord. It is therefore possible to see future social evolution carrying this trend even further, perhaps to a condition where sociality is an optional behavior to be used only when needed. The individual would then be able to maximize its independence.

As a group, however, the individuals would still form a society. A society, after all, can be defined as a group of animals cooperating toward the common ends of survival and reproduction. The group lives together too, but with the human ability to communicate across distance—or with the improvement in this ability which evolution might be expected to produce in the future—this need not remain a necessary part of the definition. The only necessary part of the definition is cooperation, or altruism, the expending of one individual's energy in favor of another's survival or reproduction. To date, cooperating animals have lived together only because they must communicate if they are to cooperate.

But if cooperative, altruistic behavior is the essential nature of sociality, how did it evolve? The "every man for himself" strategy is the one that fits with the usual understanding of evolution as survival of the fittest individual. But this strategy does not allow altruism. The two are complete antitheses.

The key lies in the fact that evolution does not concern the survival

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of individuals. Nor, really, does it concern the survival of groups. Rather, it concerns the "survival" of something which is not even alive, but which exists within the individual and, in a more abstract and crucial sense, in any group, or population, of interbreeding individuals. This something is the gene, and it is the gene upon which natural selection works.

Genes exist by the million in every cell of every individual, and they are duplicated many times in the many individuals of a population, though a single gene may not be shared by all. Each gene is a bit of information which specifies a trait of the individual, and each individual has many traits. Some of these traits help the individual to survive. Some do not. But it is not the individual whose survival matters. It is the gene. A trait which means death for its bearer, but survival for its underlying gene, may be favored by evolution, and it may spread throughout a population.

This can be so because the members of a population of interbreeding animals share genes. If the gene-determined death of one member improves another's chances of survival and reproduction by a large enough amount—if it increases the probability that the genes the two share will be transmitted to the next generation by more than the death decreases it—then the gene in question is a "good" gene. And the same may be said of any gene whose effect—whether it be death or simply the setting aside of personal interest—favors its survival in another. Such genes are genes for altruistic behaviors, and because of their effects they tend to spread in a population until every member is an altruist.

As an example, we humans are prone to rescue each other when we get into trouble, presumably because we have a gene (or genes) that makes us capable of self-sacrificing acts. But our distant ancestors did not have that gene. It had to arise for the first time in some individual, and that one person had to have enough offspring so that his or her population came to contain a fraction with the "altruist" gene. At that point, the worth of the gene could prove itself. The gene could then take over the population.

To see how it works, we can look at a situation where one man is drowning in a lake. A second man is standing on the shore. We can suppose that the first man has a one-in-two chance of dying if not rescued and that the second has a one-in-twenty chance of dying if he tries to rescue the first. We can further suppose that if the rescuer dies, the victim also dies, while if the rescuer lives, the victim also lives. Now if the second man carries the altruist gene, he will try the rescue. If the first man also carries the gene, he will return the favor

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when necessary. In this case, both men have traded a one-in-two chance of death for a one-in-ten chance. The shared gene benefits by its effect, and this benefit, this improvement in the odds, is more than enough to ensure its success. So long as rescue opportunities are not rare (and they never were) and there are enough people with the altruist gene so that its action can benefit itself, evolution will favor it over the non-altruist alternative.

This is very much the sort of thing that has happened in the Hymenoptera, the family of insects which includes the ants, bees, and wasps and which has produced almost all the social insects (the termites are the only others; they are related to the cockroaches). The behavior in question is not rescuing—it is rather the raising of sisters and brothers instead of offspring—but it is no less altruistic. It is equally a setting-aside of personal reproductive interests in favor of another.

This behavior is not shown by all the Hymenoptera, for it is a social behavior, and it is thus a mark of the social insects only. But it has its roots in a peculiarity shared by all members of the family. The Hymenoptera produce males from unfertilized eggs and females from fertilized eggs. In most other animals, both sexes come from fertilized eggs. The result is that mother and daughter Hymenoptera share half their genes, just as with other animals, while sisters share three quarters of their genes (each sister gets half of its mother's genes and all of its father's), where with other animals siblings share only half.

Effort put into raising offspring and effort put into raising sisters are therefore not equivalent. Raising a sister passes fifty percent more genes on to the next generation, and insect sociality is an entirely logical outgrowth of Hymenoptera physiology. Where the primitive solitary Hymenoptera raises her brood only to have it disperse at maturity to repeat the process, the social Hymenoptera raises offspring who remain behind to help in the raising of later broods. The result is that the social ants, bees, and wasps have more stable populations than their solitary cousins. The bulk of their numbers are sterile, and the fertile queens are produced only infrequently, but their sociality and altruism ensure the survival of their species and their genes. Many ant and wasp species, in fact, have survived virtually unchanged for tens of millions of years.

Wilson has carefully traced the steps involved in the transition from the fully primitive stage through stages of increasing cooperation to the stage represented by the social ants, bees, and wasps. The colonies of these insects are marked not only by cooperation, but also by a careful division of labor between the fertile queen and

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the sterile workers. The intermediate stages are marked by workers who retain a reproduction option of their own, but the workers of the most advanced species have completely subordinated their chances of reproduction to the colony and its mother queen.

The insects are not alone, however, in basing their sociality on the sharing of genes. The mammals do it too, though because their mechanism of sex determination is of the more usual kind, the sharing is not so extensive. Parents and offspring share half their genes, as do siblings, and the members of an interbreeding population share a few more besides. The smaller the population, and the higher the degree of inbreeding, the more is this extra ration of shared genes. If the population is too small and there is too much inbreeding, the group can be weakened, but a population which is both small enough to share a large number of genes and large enough not to be weakened by inbreeding will find that cooperativeness, or altruistic behavior, has a definite selective advantage. Add this to the mammalian brain, which is so much more able to recognize, remember, and relate than the insect brain, and the evolution of sociality and society is an obvious possibility.

Human sociality must have evolved in much this way, and human society must show the signs. It must serve the same uses as the societies of lower animals, and indeed our social activities have so effectively protected us from predators and competitors that few of either are left alive. They have improved feeding efficiency so immensely that more of us are alive today than ever before in history. They have changed the environment to the point that we can live in space or under the sea. They have definitely improved our reproductive efficiency.

But for all that our activities have accomplished in the way of improving the odds against human survival in the short term, survival in the long term is now very much in question. Our society has *not* served one of its uses—stabilization of the population.

It is worth noting that evolution does not carry a species toward domination of its environment, but rather toward persistence in that environment. Evolution is a process that fits each species to its part of the world, to geography and vegetation and climate, to the lives of its prey and its predators, and to itself in such a way that normally it neither dies out nor flourishes excessively. The life of the lynx is linked to that of the snowshoe hare, and the lives of both are linked to those of other animals and plants. Evolution does not produce single species, but rather ecologies.

Ecologies are hard to see, though. Biologists generally look at

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single species, and when they describe the behavior of a whole population they take account of ecological interactions by lumping them together, as in the basic equation of population biology. This equation is: $dN/dt = rN(K-N)/K$. N stands for the number of members of the population; t is time; r is the Malthusian parameter, the "intrinsic rate of increase" (comparable to the interest rate on a savings account); and K is the carrying capacity of the environment, the maximum number of individuals the environment can support indefinitely. If K is very large compared to N, the equation becomes $dN/dt = rN$, or $N = e^{rt}$, and the population grows at an exponential rate, eventually to overshoot K. If $K = N$, $dN/dt = 0$, and the population does not grow. If K is less than N, the population shrinks, perhaps very rapidly.

One of the ways in which animal species differ is in the size of r. Some species have a large intrinsic rate of increase, and they are called "r strategists." They are generally adapted to life in short-lived environments, such as mud puddles (tadpoles and mosquito larvae) or rotting bits of fruit or meat (many mites and insects). Their numbers are controlled by factors which do not depend on the size of the population, such as availability of a suitable environment. Their high r means that they reproduce very quickly, their local populations exploding as they take advantage of suddenly favorable conditions. But because the puddle dries up or the rotting fruit is used up, their heyday does not last long. It usually ends so soon that r strategists must have, besides their high r, a short life cycle and the ability to disperse quickly when a bonanza comes to an end. They must also, of course, be able to find a new suitable environment before they die.

Other species have a relatively low r, and they are called "K strategists." Such species tend to live in more long-lived and stable environments, such as forests and ponds, and they do not need the ability to take quick advantage of opportunity. Their evolution has emphasized instead competitive ability, meaning that K strategists tend to be larger, more long-lived, and perhaps territorial and social. They also tend to delay reproduction until later in their life cycles, and disease, food availability, and other density dependent controls typically maintain their populations at or near the carrying capacity of the environment. Their populations are stable; they do not explode.

Many species appear to use only one of these two strategies, but they are not mutually exclusive. A single species can use both strategies, and this is in fact where the human species has run into trouble. We are usually called a K strategist, for we are long-lived, large, slow in development and reproduc-

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tion, social, and territorial, but we are also an opportunistic colonizer, and in that respect we are an r strategist.

Historically, the human species has moved into and exploited every environment it has encountered. In the process, our social activities have rendered us no longer subject to some of the density dependent factors which control the populations of other K strategists. This has accentuated our r-strategic nature and left us subject to density independent controls, to the drying up of our mud puddle.

That last remark is not entirely hyperbole, for we are threatening to make our world inhospitable to us. Not only do we pollute the air and water, but we also destroy the land and waste nonrenewable resources. The stripping of forests and the erosion and salinization of farmland began thousands of years ago[1] and continue today. Industrial fumes kill off vegetation. Industrial poisons render both land and water unfit for use. Tar and concrete remove land from productive use.

The result is that in many parts of the world the carrying capacity of the human environment is drastically reduced. It is even possible to say that our population exceeds the environment's short-term carrying capacity in many places and the long-term carrying capacity all over.

It is, however, a mark of the social animal that it modifies its environment. The change may or may not be in line with the animal's prior preferences, but that is another matter. The change follows from the animal's social activities, and most social animals seem so adapted to the consequences of their actions that those actions seem to serve their wishes well. For example, the black-tail prairie dog is a rodent similar to other rodents which prefer grasses as food. The black-tail prairie dog, however, forms well-populated colonies whose burrows disturb all the ground within the animal's range. As a result, the preferred grasses don't grow, within reach, while various weeds avoided by the related, nonsocial rodents do. And these weeds are the preferred food of the black-tail prairie dog. Weeds such as sage, which are not eaten, are carefully nipped off and removed.

For us, a comparable shift in liking might mean coming to prefer the taste of polluted water. It is not an attractive option, but it is the sort of thing B. F. Skinner sees as necessary for a workable future. Skinner usually speaks of the need to use operant conditioning to engineer human behavior into paths that match the conditions of life, to make people choose the most useful and realistic careers and lifestyles and to make them law-abiding, peaceful, and happy. He has also, however, recognized that similar results can be obtained by

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unaided nature, that the choices people make in their lives are forced by an unguided conditioning, and that a decent, non-chaotic, surviving future must be marked by behaviors similar to those he recommends. The behavioral engineers could only quicken the process.

Skinner sees that humanity must be shaped to the physical and social environment it has made, that the environment cannot be endlessly shaped to humanity. This is precisely what the role of evolution is and has been. It has sought the persistence of species and genes. It has shaped flesh and behavior and environment. It has moved from a de facto interdependence of species to a de jure interdependence of individuals within a species, from ecologies to societies (though the ecologies have never been, and cannot be, abandoned). It has gone from the tight, obligatory linkages of the superorganisms to the looser ones of humanity. And along the way it has adapted its materials to situations of their own making and to situations forced upon them by other species and by inanimate nature. It will not stop.

But the time scale of evolution is slow, far too slow to produce the necessary changes in our behavior and our society soon enough to do us much good. It is therefore fortunate indeed that changes in human society follow upon the forces of a psychological and historical natural selection, rather than a biological one. These forces do act quickly, and all they require is a society through which and on which to act.

Skinner proposes one way to use these forces, focusing upon the psychological, but neither his way nor any other will offer much hope if our society does not endure—and our society may contain within itself the seeds of its destruction. One of the results of our social activities—particularly of technology and transportation—has been a great mixing of previously isolated groups. This has meant a vast increase in the number of intermarriages between people of different nations, tribes, and races, and hence a decrease in the amount of

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inbreeding within each group. This in turn has meant a reduction in degrees of kinship and numbers of genes shared between any two people. And the process is accelerating.

Edward Wilson notes that this process may well mean that the biological selection forces in favor of altruism are decreasing. If he is right, then we may expect to see a lessening of the behaviors that define and shape human society—cooperation, rescue, and everything else that signifies our high regard for the lives of others—as their underlying genes are lost. Society could disintegrate into something approaching anarchy, held together only by custom and law (and only weakly by them, since the genetic motives for obeying them would be lost). It could do so, says Wilson, in as little as ten generations—just two or three hundred years.

Even if Wilson *is* right, however, there is a strong chance that society will still endure. We are psychological and historical animals, and the forces that make such a description appropriate interact with the biological forces of evolution. At the present stage of our society, they may even be strong enough to prevent any loss of the social genes as they provide their own selective forces—in addition to gene-sharing—in favor of them.

If society does indeed endure, the forces of psychological and historical selection will be able to produce changes which will help it to meet its needs for population stability and continued existence. These changes are not predictable with any great certainty, but two things do seem likely. We must reduce our reproductive efficiency, either by reducing births or by increasing deaths, and we must achieve a steady state economy.

The need for a reduction in reproductive efficiency follows from our too-great numbers, which aggravate or cause most of the economic crises we see today, and it is recognized by many. It could be accomplished by reversing social evolution, by discouraging altruistic "rescuing" behaviors such as social welfare, curative medicine, or the feeding of starving nations. It could also be accomplished by encouraging the aggressiveness and discord that mark relations between the members of our advanced society, not by permitting calamitous wars, but by returning to the older ways of dueling and feuding. Both approaches are barbaric, but either would increase the death rate quite effectively.

We may need to take a step or two backwards if we are to avoid a sudden population crash. The environment will support only so many of us, even with the aid of modern technology, and if our numbers are not to collide with our environment's carrying capacity, we must adjust our society so that it contains fewer of us. We certainly

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must not in')duce changes which would only aggravate the situation further.

But such a reversion would only be a stopgap. In the long run, our society must be restructured to follow a saner path. It must stabilize its population at a lower level than today's and it must avoid inordinate growth, whether in population, industrial and economic activity, or in resource use. The only growth we can afford is growth in knowledge, which is the most satisfying kind and which allows us to make better and better use of the resources we have. We must respect our environment and not exhaust the Earth. Our society must emphasize the K strategy and orient itself toward the steady state. And it need not wait for evolution.

This necessary shift in orientation can be deliberately achieved, for there is a feature of human society which both controls and reflects its orientation. This feature is the human use of ritual. Émile Durkheim has said that human rituals reaffirm and rejuvenate the moral values of the human community. They formalize the rules and norms of a society's behavior and make them ingrained in the participants in the rituals. They offer a way to study society, as in anthropology, and they are a handle for anyone who wishes to manipulate society.

Many past and present human rituals are r-oriented. Fertility rites, celebrations of creation myths, rituals of planting and harvesting, and sports all support the need for growth, for increase in population and property. And all of these rituals may need to be replaced by rituals that support the status quo, that stress stasis. Our long-term survival demands that we transfer our worship from the fountain of nature to the constantly flowing stream that issues from that fountain, or, better yet, to the still, unchanging, ever renewed pond fed by both.

The growth orientation has not been with us forever. We were once hunters and gatherers, owning no fixed abode and living off the fruits of a constant nature. When we took up agriculture, growth became a possibility for the first time, but it was still long before we embraced it fully. The ideal of life in the days of the Old Testament was stated as "each man with his vine and fig tree." The image was of a steady state, even though grain was raised, with its implications of growth and increase. Grain crops became crucial to civilization only much later, and with them came the growth that has produced our present plight. We became accustomed to the thought that a handful of seed invested in the soil could produce bushels of food, and we extended the idea to all areas of our lives. And we shouldn't have. The parable of the loaves and fishes should never have been told.

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I do not suggest that we return to our earliest ways. A hunter and gatherer does not lead a rich life. He or she has scant leisure for the thought and reflection and discovery that we value so highly. Nor do I suggest that we abandon the raising of grain, for bread *is* the staff of life. But I do suggest that we replace our images of grain with those of tree and vine crops, of the lamb with the flock, of the egg with the hen. They are images of the steady state, and they would bend our thinking away from the need for continual growth.

We could also retell our creation myths, shifting from stories of a world that was made, suddenly, to ones of a world that became, slowly, which is what science tells us is the truth. We could change the scoring systems of sports from the incremental to the decremental. Where now each team starts with no points and adds to its score to win, we could have each team start with, say, a hundred points, have each team's goals mean lost points for the other, and have the winner be the one which remains nearest its starting score. The game would become more defensive, true, but we would come to think in terms of maintaining a status quo.

We could even change our marriage customs, perhaps along the lines of those shown by the Koman peoples of the Sudan-Ethiopia border. There a man must offer his bride's family a sister (or other female relative) in exchange. The sister marries a man of the bride's family, and this reciprocity is but one part of a larger ideal of reciprocity in labor, trade, and justice—all serving to maintain the status quo.[2]

These changes would be hard to achieve, for each one touches a sacred matter, and their effects, though desirable, would be slow in appearing. They would not save us from our present troubles, but they would help us survive them and avoid a recurrence of them. The resulting society would be relatively static. Its population would be constant. The conditions of its members' lives would change very little. Its ethics and its morals would not be our own—it would, for instance, show less reverence for new life, and this is a change whose beginnings we can see now—and it would seem alien to us today. But it would remain a human society, and the handing over of the Earth to our inevitable successors would be delayed for a time. ■

1. *See J. Donald Hughes'* Ecology in Ancient Civilizations *(University of New Mexico Press, 1975) for an account of the process in the Mediterranean region.*

2. *See Wendy James, "Sister-exchange Marriage," Scientific American, 233 (December, 1975): 84-94.*

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THE**SAPIPHAGE**

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JACK GAUGHAN

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Barnard Hollins' door said *Correlations Inc.* The two back rooms of the office were lined with file cabinets topped by precarious stacks of well-marked books. One of Barn's pair of bright young men sat by the fichefax scanning and copying a steady stream of pages; the other fingered his tie absently as he kept his eyes to the CRT screen and tapped file codes into the office minicomputer. Two recently-acquired secretaries sat by the far wall of the main room, opposite Mrs. Wiggins, where they busily transferred boxes of paperwork into shiny-new suspension-drawer file cabinets, and handled nonpersonal mail. They had been Lou's idea. Lou was Barn's agent. "Think *big*, Barn. You got a talent, you have to push it."

Barn Hollins had a talent; he had a brain that continually percolated with a sweet inner song. He loved to hear the click click click of his mind meshing ever tighter in more complex webs of knowledge, absorb pages of questions and answers like a jet sucking in air, flying high on a thinking jag. He had never felt so alive, years before, when he worked behind the periodicals desk back at the Hudson Institute. He had not understood the discomfort of an idling mind that effortlessly shuffled the paltry input and wanted more. So some good had come out of the Institute's shut-down, after all—here he was, Barnard Hollins, lecturer, consultant, syndicated columnist. His mind purred at full speed all day, sorting, making connections. It still wasn't quite what he wanted—but it was a job he did well, that only a handful of other people could do, and it left his mind happily quiet at the end of each day.

The phone flashed. "Ask them to hold on," Barn called out to Mrs. Wiggins. He rested the mouthpiece in the nest of his bushy black beard, holding the receiver against his ear with the tip of his left forefinger. With the other hand he alternately scanned the screen on his desk terminal and blue-penciled next Friday's copy for *Ask Dr. Memory.* As he corrected a reference, the pencil point broke. Barn sighed. What could you do? It wasn't bad for somebody without a degree. Maybe it was Lou on the phone, bringing word of a magazine interview, or another speaking engagement.

It was his agent. "What gives, Lou?" In the background Barn could hear honking horns and other traffic noises. Ah, sweet New York. "Where the hell *are* you?"

"Down on Canal Street." Lou's voice came short of breath. "Look, you gotta get down here. There's a lady under the name of Mary Todd setting up shop on our racket who nobody else has heard of."

"You sound worried." Barn reached into his desk for another blue pencil, found the box empty, and snapped his fingers at Mrs.

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Wiggins. "Did that lecture series at National come through?"

"Yeah, yeah. Barn, she's not going to kick in with the rest of us. If we don't watch it, I tell you we'll be down to writing cookie fortunes by Christmas."

"All right, take it easy. I'll be down as soon as I can. Say . . . forty minutes. Okay?"

"Not really, but it'll do. Look, you don't understand. I think we're in for trouble."

"How do you know?"

"I just feel it. She ain't like the rest of you all-knowing clowns."

"Sit tight. I'm on my way."

Barn finished marking up the copy with a fresh blue pencil and gave the four sheets back to Mrs. Wiggins. The two bright young men had the front panel off the minicomputer and were happily fixing something. "I should be back later this afternoon," Barn said. "Don't send this out until I check it again. Where's my—oh, there it is. Mrs. Wiggins, why do you *insist* on moving my hat?"

"Isn't that where you left it?"

"Just get this done!" he snapped. "If DataBank calls, I'll talk to them tomorrow." Barn pushed his hat on his head and tried to slam the door behind him. He almost wished business were worse so he could afford to replace the woman.

Mrs. Wiggins smiled. She knew that of all the chores her boss had to do, writing the column himself was the one he detested most.

The subway rumbled under Manhattan. Barn emerged at Canal Street to find Lou nursing a cup of coffee in the Nedick's around the corner. "So where's the world-shaker?"

"Three blocks down." Lou's normally rumpled tan sports coat had long ago turned gray from exposure to the city. It was his only concession to life. Where Barn was big-boned and filled clothes with ill grace, Lou's slight build was always neatly dressed in wrinkle-free shirts and perfectly-fitting slacks. Barn could not understand how he did it. Under a slowly receding hairline Lou's eyes watched everything with a peddler's alertness, ever ready to buy, sell or trade. "Sorry I sounded like that over the phone," he said. "I don't know what got into me. But we oughta check. Ready?"

"Finish your coffee. It's your show."

They walked up to an old brick apartment house which had faded to a rusty brown. "She's not going to get much business here," Barn commented. "Where'd you pick up the trail, anyway?"

"She just lives here. I'd stopped in at the *Times* to talk with Spofford. She was picking Jackson's brains and conning him into a second section article at the same time." Lou swore under his breath. "I've never seen a man so uneasy. I got to sneak a look at his notes.

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Her real name's Marisse Pinctada. Some kind of European, I guess. She's opening up an office next week, over on Sixth Avenue. Real class. A money operation. Furthermore, considering you guys are sort of showbiz types, she's got something important which you definitely lack."

"What's that?"

"She's pretty and you ain't."

"Neither are you, brother bum." Barn pointed at the stairs. "Lead the way."

Lou Redstone was wrong. Marisse Pinctada was not pretty. She had stringy black hair and hollow cheeks that ran into an angular jaw. With her thin arms and new, ill-fitting clothes she reminded Barn of people he had met who had survived the concentration camps, where the body had long ago been strained too hard, and burned out. She was gaunt, with wide eyes, and made no unnecessary motions, so every movement came with a sudden jerk.

Yet when she opened the door in answer to Barn's knock, and stood stock-still under the dim hallway light, Barn gasped and caught his breath. There was a vitality about her that made his gut tighten, pressed against his chest and made his back tense as if he were confronted by a snarling beast. Her presence set every needle in his body off the scale, and his instincts registered this as beauty. For it couldn't possibly be fear.

She was not pretty. But after the first instant, you would never notice that fact again.

"Mr. Hollins, of course," Marisse Pinctada said. She stepped forward to shake his hand before he could object. "And your agent, Mr. Redstone. Won't you come in?"

Lou bumped into Barn, jolting him into motion. They moved into the living room. Barn shook his head slowly as he looked around.

"Would you like a drink?" Marisse inquired.

"Anything," said Lou.

"Mr. Hollins?"

"Huh? No, no, that's all right. Maybe some ice water."

She turned precisely in place and strode out. The walls seemed coated with a layer of fog. Unpainted shelves on bright metal brackets lined the walls; hammer, screwdriver and other tools lay atop an orange crate. The windows were draped with pale green gauze, as if by afterthought.

Lou frowned.

"What's wrong?" said Barn.

"Not sure yet. I just don't like it. I shouldn't have been that upset." He tapped a fingernail against a square board secured to the wall with outsized brackets. "Books," he said. "Turntable. It doesn't fit." He looked at Barn. "She must want something. Just be careful."

Marisse Pinctada re-entered the room, carrying four drinks on a tray. To Barn, everything else grew

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dim and unreal in her presence. She handed him a glass. "I took the liberty," she said as he sipped. "Since I know you don't use alcohol . . ."

Sarsaparilla! Barn nearly choked on the unexpected tang, but caught himself in time. How could she have–She was already giving Lou his drink. "Bloody Mary?" she asked.

"Right," said Lou absently. He took the glass. Then there was a loud *crack*, and he was staring at the red on his hands, and the shattered pieces of glass on the floor. "I'm sorry," Lou said wonderingly. "I guess I must have squeezed too hard." He opened his hand and gingerly wiped the red liquid off with his handkerchief. His palm was uncut.

"It doesn't matter," Marisse Pinctada told him. She threw the fragments of glass into a metal wastebasket and ignored the puddle soaking into the rug. "I'll get it later."

"If you say so," Lou said. "But–"

"Of course! The reason for your visit!" she said, looking at them. "You must have seen the evening paper already. How kind of you both to come say hello."

Barn and Lou exchanged a glance. "Actually–" Barn said.

"What we came for–" Lou started to say. They both stopped, then Lou continued. "We hadn't heard of you, and you weren't listed in the *Journal*, so we thought we'd check."

"But we've intruded long enough," Barn said quickly. "C'mon, Lou." He set his drink down, untasted since the first sip.

"No doubt I will see you gentlemen again," Marisse Pinctada told them. "So I will not yet say farewell."

The door opened before they got to it. A bundled-up figure stumbled in, sneezing and flailing its arms. It headed directly for the tray where one drink remained, took it and drained it in one long swallow. "Ahhhh." A face emerged from under the scarf, skin as pale as Marisse's, but reddened from sun and

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wind. The man's eyes were bloodshot, and his hair stringy black. He looked around and focused on the two parting visitors.

"Ahhh," he said again, with the same tone of relief. Barn felt his shoulders itch; the same magnetic fascination was at work here, though less strongly. "Mr. Hollins. And Mr. Redstone."

"They were about to leave," Marisse said to him.

"A pity," he said, and set down the shoulder bag of books which he had carried in. "I had hoped to talk to you—Marisse has asked me to help her in her business efforts here."

"Warner," Marisse told Barn and Lou. "My brother."

Warner dropped his chin briefly in acknowledgement. "Yes. I had hoped you would inform me about the nature of the agent's business," he said to Lou, looking directly at him. "There are some things I think I need to know." He pulled out a crumpled handkerchief and played with it, still staring at Lou. Suddenly Warner brought his arm up and sneezed into the handkerchief. "Perhaps," he continued, putting his hand back in his pocket, "that will not be necessary, however."

Barn spoke up. "Right. We'll see. We've got to be going now." Lou was standing still. Barn nudged him gently out the door. "Thanks for the drink." Barn pulled the door closed behind him until he heard the latch click securely.

They went down the stairs slowly, like old men. When they were in the street again, with the sky turning purple and buses turning corners and pigeons flapping from ledge to ledge, they walked and did not speak until they reached the subway entrance.

"You were right, Lou. I don't like it."

Lou reached for the handrail. "I don't feel well," he said.

Two p.m. Time to start the afternoon phone calls. Mrs. Wiggins was on the first line, so Barn punched the second button on the phone and dialed Cohen DataBank Services. "Extension 387, please. Hi, Al. Barn. What's news? That much, huh? Okay, I'll get it in a minute. Look, on item 68 from last Thursday—that's medical analysis by hair trace element ratios—and 156 from yesterday, you might check it out. Also, did anybody catch the glitch in 68 yet? They did, huh. Getting to work on it. Who caught it? What! You're sure—I mean, that's the name? Three days ago? What kind of service—sweet Jesus!" Barn took a deep breath. "Sorry, Al. Didn't get much sleep last night. Hold on and I'll run off."

While his cassette recorder copied the transmitted data pulses at 60-to-1, Barn flipped through his printout stack from the week. The deskset chirped, and he picked the

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handset back off the coupler. "Looks good. Say, Al, I'd like to come over in a few days and check some stuff in person, if that's okay with you? Friday morning? Tell you what, I'll treat you to lunch. Fine. Bye."

Lou walked in as Barn switched on the teletype. "Bad news, Barn," he said, dropping his briefcase onto the desk. He draped his sports coat over a nearby chair. "I had Columbia sold on a week's symposium for you and Esther. They were all set to give you two the full gig—unlimited tour privileges, lunch date conferences, the works. I even talked them into a public lecture." He leaned over the emerging printout. "Today's news?" Barn nodded. "So," Lou continued, "I thought I'd finally done it, convinced somebody that you guys went public because nobody else gave you a decent chance to earn a living with your brains. We were haggling over the fee—as if you weren't worth it and more. But as your agent I'm usually prejudiced. MIT may want Esther; that helped. Anyway, I could tell they'd gone for it, hot talents battle information explosion and all that, when the Dean came in and pulled Weisskopf back. Five minutes later they tell me they'll do it—" Lou spread his arms in futility "—but with this Pinctada pickle instead." He picked up a dictionary and slammed it back down. "That's the breaks, I guess."

"Will somebody else bite now that Columbia's broken the ice?"

"What? Oh, sure. Princeton's think tank may follow, or even Cornell. It just burns me up. All that work and—" Lou snapped his fingers "—just like that! She grabs it."

"Well, she's on the DataBank, too. Full morgue access as well as the daily service."

"Goddamn. I don't understand it."

"You think I do?" Barn glanced at the fresh printout. "Sometimes I wish I weren't so good at playing Mycroft Holmes. Then I could give up thinking and go make bookshelves for a living. Speaking of which, how's the money situation?"

"Decent. Could be better. That character and her brother've cost us a bunch already. Set me back about two weeks. Doesn't know much about business—hah!" Lou pulled a chair away from the wall. "Any word from the rest of the gang?"

"No—but that's a good idea. I'll call around later; you check the grapevine. Next thing you know she'll buy the *New York Times* or something."

"The newspaper or the building?"

Barn suddenly grinned. "Why don't you let a man get his work done?"

Barn sat still, staring at the dirt-streaked window. Maybe things would turn around again. Here he

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was, with his own office, a by-line, a staff. What had he been, two years ago? He tried to recapture his feelings, now so distant from the present. Thirty-six and out of work. No career, no family. A book-strewn two-room apartment for a home. He had sunk into utter depression and despair. Unemployed for months, he had wandered hollow-eyed through empty days while his mind ground and reground everything it had ever read. The feelings were hard to re-experience. Barn only remembered that he had felt that bad. Walking in the middle of winter through Rockefeller Plaza, watching the skaters circle on the ice, his mind had begun to spin faster and faster, sucking at him until he was sure smoke was pouring out from under his hat. He had rushed home and gulped down some tranquilizers, and then paced furiously about his rooms until his whirling mind slowly began to calm, turning slower and slower until it was reduced to a quiet drone, like an old wind-up victrola at the end of its spring.

Then Lou had come along, stuck in the same embarrassing unemployment line, looking for a break. Ex-drummer, ex-reporter, ex-agent. The perfect *macher* for a *maven.* Between the two of them they had found a use for Barn's all devouring brain. A few others like him had turned up. One of them coined a fancy name, *synoptic polymath,* to label their wild talent. A general specialist in the field of knowledge. Knights in the war against the information explosion. This goes with this. *Dr. Memory* says that. Have you considered trying. Maybe there is a relationship between.

The phone rang. Barn broke from his reverie. It was Lou.

"Hey, herring maven, you wanna be a celebrity?"

"What do you mean, man of many words?"

"Here's the deal." Lou cleared his throat. "Your friend and mine has somehow talked Fairleigh Dickinson University into an evening's lecture/symposium—"

"Oh, great."

"Let me finish. She wants you to join her."

"*What!*"

"Don't ask me, boss man. Warner, that's the brother with the red schnoz, mumbled something about presenting the field instead of the people, and how delighted he was to have you appear with his sister. It didn't occur to him we might say no. Anyway, the gig is set for a week from this Friday evening. We get five bills for our side, and they get the same. I've already accepted for you, of course. That okay with you?"

Barn sat back in his chair. "That's weird, Lou."

"Go tell a man. But it's academiaville, and the price is right, so we've *got* to take it. No matter what."

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"I suppose you're right. You'll get more details?"

"On your desk tomorrow. Look, I gotta run. I just wanted to phone and let you know what was happening."

"Right. Thanks. See you in the morning." Barn let the receiver fall back on the phone. It was all very strange. Were they going to cooperate after all? Or was there something that neither he nor Lou could see in this?

It would be a long week waiting. Very long.

Barn pulled on his ancient nightshirt and got into bed. It was early, but he would have to go more or less straight from work to the lecture next evening, so he wanted to get a good night's rest. He hoped he would not be nervous; it had been some time since he had done public speaking.

The radio was playing Liszt's *Faust Symphony*. By the time he had finished brushing his teeth and straightening up his clothes for the morning, the work was over and the announcer was telling him "—will play Musorgski's *Pictures at an Exhibition* after the ten o'clock news, brought to you by the radio station of the *New York Times*. Has anyone ever asked you . . ."

Barn settled in his bed and pulled the quilt up under his beard. As the news ended, he reached over and turned the radio off. To sleep.

His mind filled with a porridge of the week's events as he drifted down into sleep, mixing in images from earlier years now seen in new perspectives. He felt awake and alert, yet knew he had left his bedroom far behind. He heard a whirring noise. He turned, and found himself in an immense room. He was flipping through the pages of an old dusty book whose corners broke off as he turned the pages. The book was filled with brightly-colored pictures undimmed by age. They seemed to speak to him, demanding answers; he leaned over and drew patterns of dots next to each picture with a pencil, coding them in designs all his own. Myriads of dots already lined the margins. But when he tried to turn the page, all the words slid down to the bottom.

The whirring became the sound of a mile-long punch-card sorter, typewriters topped by flashing lights ranged below it. The wall was covered with blinking squares of green and red and white. He clenched his fists as if that would make him understand the pattern. The lights came closer. A brown whizzing appeared in front of him: a giant tape unwinding across the room. He heard footsteps. When he turned to see who had come in, there was no door. He threw his hat at the coatrack. It sailed around the room and tilted out a window, beyond the reach of his outstretched arm. He lost his balance,

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and floundered. When he turned around, Marisse Pinctada stood in a doorway. She wore a flowing black dress that draped around her to the floor like a birch pine. And was wearing his hat.

He tried to smile as if to ask her in, but could not move. She opened her mouth and revealed bright white teeth. Touching the hat with her left hand, she flowed inside. And smiled darkly.

"I don't know you," he told her.

"Yes you will," she said, and her words echoed in his mind. *Yes you will.* Her mouth opened and she leaned towards him, pressing him back against the hard edge of the desk. Lights flashed around him, lights flashed in her eyes and teeth; the room tilted as his bare back touched cold. Scraping nails raked his shoulders, and he tried to scream. The whirring matched the blinking in a giant heartbeat thump, and his hips jerked like frogs' legs as they thrust towards her, were pulled towards her as she pressed him down. Now she was above him, smiling, wearing only his black hat, making a pale-fleshed vice that squeezed him. Her tongue flashed in and out between her teeth, making a card-shuffle sound of her breath. Now she grew nearer again, pale breasts against him, straining and squeezing. *"Tell me!"* she hissed, and sent her tongue deep inside his mouth. Her face was huge, her eyes wide. He closed his eyes and saw himself inside a giant pulsing heart. The roaring grew louder; the waterfall-crash of a storm-swollen river, and he strained to jump in. A bird cawed. He twisted like a landed fish, jerked twice, and sank back under the water's broken silver surface.

Screaming, Barn Hollins awoke, drenched in sweat. Three a.m.

Friday morning dawned over New York with a sun-banishing fog that first hid and softened, and then drifted away, leaving the boldly-outlined city behind. The sky was a rare robin's-egg blue; Barn Hollins walked the thirty blocks to his office slowly, savoring the unexpected pleasantness of the day. Eventually he had returned to sleep until morning, and the nightmare was all but forgotten. *Just nervousness,* he told himself. The details were unreachable; his well-trained mind would not give him back his dreams.

He was whistling *What Shall We Do With A Drunken Sailor* as he entered his office. Mrs. Wiggins looked up and said, "You're late."

"I know." Barn smiled at her. "Have a pretzel."

"Mr. Hollins!" Ignoring the proffered bag, she extended a handful of opened envelopes to him, "Today's mail."

"Ah, Mrs. Wiggins, what would I do without you?"

"That's what I'd like to know."

"Well, then take the day off," Barn said on impulse. He grinned

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as she sat upright in her chair, shoulders straight. "Go ahead, the world won't end. You girls, too," he added to the new secretaries. "And you guys in back. School's out. Go, go."

The younger employees were into their sports jackets and gone without further urging. Mrs. Wiggins tried to list the reasons she needed to stay and work, but Barn would not listen.

"—if you go out and somebody calls?"

"I'll survive," Barn said.

"—the column?"

"I'll take care of it."

Stunned, she fled.

The rest of the morning and afternoon sped by without resistance. Barn used two letters on meditation to open the column, listed two books as reference in the answers, and filled the body of the space with an explanation of proper jogging techniques for balance. "Run at a pace that allows you to converse comfortably with your partner," he typed. "Increase your routine slowly; don't overexert yourself. The reasons for this . . ."

There was no word from Lou. *Well, I'll see him tonight. I can run this place myself for a while.* He pulled open his desk drawers and emptied their contents onto the side table. He sorted and filed until half the papers lay in the garbage can, the other half in neatly marked folders. Barn looked at his wrist watch. *Four-thirty already? Might as well call it quits.*

He stopped in the men's room to change his shirt and put on the tie. The knot was barely visible under his beard. *Pretty snazzy.* He stuck his tongue out at the mirror. *Who're you trying to impress?* He wondered what Marisse Pinctada would be wearing.

From Sixtieth Street he turned onto Broadway and headed downtown. The traffic was unusually light; the only cars that honked at him as he crossed the streets were a crumpled cab and a drab green van with blacked-over windows and, in small lettering, *City Collection Agency.* He ate a light dinner at the Hebrew National in Times Square, then cut crosstown to the Port Authority before he remembered he was headed for the George Washington Bridge. The oversight shook him for a moment. But by the time he was out of the subway and, on impulse, walking over the bridge, the sun was dropping down before him through a parfait of glowing red clouds, and Barn forgot his worries.

From the Jersey side he caught the Number Eighty bus as it came off the ramp. The driver handed him the white square ticket. Barn looked at it idly as he sat down. *65, 3-14 . . . all ten digits.* A lucky omen! "Look," he said to the boy across the aisle. "I got one."

The curly-haired youth inspected Barn's ticket. "You sure did. My

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sister got one two weeks ago. I'm still waiting for one."

"You want it?"

Eyebrows v-ed in thought. "Nah . . . I'll get one eventually. Thanks."

Outside, the sky was purple. The driver let Barn off on River Street at the bottom of Ceder Lane, and Barn walked the six blocks to the campus. A security guard pointed the way to the auditorium, and another guard opened the door when Barn explained why he was there. "Sure," the guard said. "The other folks got here about twenty minutes ago."

"Do you know if my agent—Lou Redstone—is here? Dirty gray jacket? Bald—" touching above the temples "—up here and black hair?"

"Nobody like that."

"Thank you."

Barn walked down the inclined aisle between the sections of seats. The auditorium smelled of cigarettes and age. Several lights shone on the stage, and two lunchroom tables with chairs were roughly centered. A walnut lectern stood to the right side of the stage near the flagpole. A dozen people stood or sat near the front row of seats, talking. As he neared the stage, Barn recognized Warner and Marisse Pinctada, who were talking to a man obviously in charge.

"Mr. Hollins! Over here!"

Barn shook hands with the brown-suited man, who introduced himself as Dr. Jeffries. After some hesitation, Barn also shook Warner's hand. They were going over the last-minute details—length of question period, names of people which should be mentioned, and so forth. The janitor opened the doors in back, and Dr. Jeffries motioned them all backstage as the first students began filing in. Barn wandered around until he found the men's room, where he urinated and rinsed his hands. Suddenly his throat tightened. A wave of nausea swept over him, and only with great effort did he keep from throwing up. He stepped back out into the corridor, walked into the stairwell, and opened the outer door. Night had fallen; he inhaled the cold air for several minutes and stared up at the stars. Then he went back in and took a drink from the water fountain.

By the time he returned to the wings, Dr. Jeffries had started the routine announcements. The house lights dimmed, and the introduction began. Barn stood by the power cage where a student was adjusting mike levels, and stared out at the roomful of faces.

"Tonight," Dr. Jeffries was saying, "we are privileged to sponsor the first academic discussion between two members of a relatively new field—the science of knowledge. Its practitioners are few, for the requirements are high. The people who have created this field call themselves *synoptic polymaths,*

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which is a fancy term for 'general specialists,' I think." Polite laughter. "To be a synoptic polymath requires a well-trained, often photographic memory, plus the rare ability to make connections between seemingly unrelated facts. Beyond that, you tend to have an unlimited curiosity about everything. There is little recognition of the need for these people, and they have been forced to earn their livings in various ways not quite as scientifically oriented as you would expect . . . . Mr. Barnard Hollins, one of our two guests for the evening, writes a syndicated newspaper column which appears in over one hundred dailies around the country, and he also gives lectures and runs a consulting service. These people are not quite doing research for new knowledge; they are working with what is being found out. Yet this in itself yields more knowledge, and I am sure you will agree that these are not jobs of mere librarianship. Mr. Hollins and Ms. Pinctada are here tonight to discuss some of the work they have done, what they do more generally and how they expect to fit into the scientific and intellectual communities at large. So without further comment, I would now like to introduce Ms. Marisse Pinctada, and Mr. Barnard Hollins."

Polite applause filled the darkened auditorium. Barn gave his tie a nervous tug as Marisse walked past him to her chair. Where was Lou? Marisse bowed slightly as she sat down; Barn thought he saw Warner staring from the opposite wing, but as he walked out after Marisse he saw Warner step up by the cage.

Dr. Jeffries was already talking to Marisse, discussing the sudden entrance of the polymaths into academia. "Yes," she answered him. "I spent most of this week at Columbia. It was truly fascinating." Once again there appeared to be that extra spotlight on her that gave a greater presence. Barn noticed how clearly drawn her arms were, how pale they were in the stage lighting. He turned his head to look at the audience, searching for Lou.

"Mr. Hollins, you've been working with the public for quite a few years now," Dr. Jeffries said to him. "How have you found it, working with the media, explaining things to whoever has a question?"

"I've enjoyed it," Barn answered. "It's something I have to do, that's how it is. The challenge is not as great as my consulting, admittedly. But it has been fun. Not to say that it isn't *hard* to make a living—" scattered laughter "—but it's a challenging job as much as exhausting." He went on to describe what he did on a typical day: the office routine, the notebooks, the data services, the column, the phone calls and filing—and the quasi-vaudevillian atmosphere that occasionally erupted. As he talked,

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Barn felt the audience drift away, dim as the morning's fog. He paused for breath and heard Marisse Pinctada describe some of her recent work. Her voice and Dr. Jeffries' voice became loud in his ears, a constant roar like waves on a beach. His answers meshed with theirs, filling their gaps, and gradually he grew less and less conscious of the proceedings, hypnotized by the drone of the talking. He noticed his hands moving and mouth talking with dispassionate interest.

Back in his mind, he felt an itch. The ocean's roar of speech filled his ears, but a small stabbing intruded, like a dentist's drill through the numbing torpor of novocaine. *Go away,* he told it. *Bother me later.* Dr. Jeffries was reading from a recent article on the information explosion.

The itch grew more insistent. Barn felt a prickly sensation at the back of his neck. Against the outside roar, a small bubble burst.

Tell me.

He tried to look at the back, dark corners of the audience, but his attention was caught inside. What was that by the door? But his concentration was captive, while his lips spoke into the microphone.

Tell me.

A jeweler's hammer tapped delicately at a memory, unwinding a stream of pictures from his mind.—*Studies in urban development over the last twenty years,* he heard his memory speak.—*Correlations between game-theory simulations and growth control studies; also relates to . . . STOP!* Barn tried to twist off the flow.—*post-Newark programs and exurban experimentation where . . .* Barn felt the end-of-subject twitch, and shouted, *What are you doing?*

—*Complete journals of the American Ethnographic Study . . . Beatles, Farina, Dylan . . . Rousseau and experimental communes . . . Russian-American joint space missions . . .*

—*Poetry of protest . . . animal life of South America . . . best-selling home psychotherapy books . . . X-ray microscopy techniques . . .*

Now Barn felt sweat soak his armpits, and a deep dark force combatted the blood-sent heat of his racing heart. *Tell me.* It was no longer a voice but an unstoppable suction. He tried to cork it, clamp tight the vault of his mind, but the hordes of tiny voices and flashing pictures rushed through his grasp like lemmings, throwing themselves high into the demanding gulf. Math notes, street maps, high school loves and hidden thoughts; all the flotsam and jetsam of his life leaped from his memory in the trail of his life's efforts.

Come back, come back, he called. He tried to replay a piece that had spoken. Tap; he pushed the mental trigger. Like stepping on a stair not there, he floundered. What must he be doing, outside in the real world? Surely he must be dying. He felt

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other forces inside him, holding his body up. The ocean roar outshouted any words. The small screen of stage and audience was blurred by the side, swimming under water. His mind was draining faster and faster, the words rising to a high whine, the pictures speeding to a blur. *Lou, help me Lou,* he called.

He cannot help you. A picture of Lou, sprawled asleep in the Pinctada's apartment.

Who said that?

You know me. The clarity of Marisse Pinctada.

What have you done to Lou?

Do not worry. He visited our apartment while we were out last night. An image of Lou riffling through papers. *He saw some things he should not have. But he will awaken soon.* Pause. *Now we must know what you know.*

Barn shuddered. Another chasm opened in his mind. What had gone now? He nodded woozily, off-balance. *Why?* he asked.

We need to know.

Who?

A picture of a whirling world; then stars, gleaming like plucked strings. Searching. Moving towards a goal. *We . . . prune. Judge.*

What do you want with me?

Complete data. From those like you we can take from the mind. Pictures of Dov, Ramon, Esther. Others Barn did not recognize. *With the aid of a large controlled crowd mind. Otherwise we would have to take you with us. This is the better way. But we need to have knowledge that we may avoid mistakes.* Brown of anguished determination.

But I need it!

A baritone thought came in: Warner. *We have the greater need.* A deeper blue, of sorrow, shot with red. *There is no taking without loss.*

The sucking picked through his brain with greedy tentacles, carting away his precious memories. The vast structure of connections leaped away in a series of lurching heaves. Now it was all fragments, and even they were going. *What will become of me?* Barn wondered. Strange, how he was even drifting away from the pain of a rifled mind. Thinking had always been a remote thing.

You will not be able to go back, he was told. *You will remember. But the skill will be gone. It cannot be helped.*

Gone? The inner song of self, gone? Barn was afraid; he had no thoughts of himself save as a man with a mind in motion.

Yet he wondered what it would be like, to live in silence.

He felt another conversation, closed to him. He shuddered. Something was leaving him. He wondered what it was. Looking closer, he saw the blurs of departing memories, the speeding whine of triggered brain impulses leaving him. The actions of the outside world came to him like a faraway pantomime; Barn knew they were

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controlling his actions, making him act controlled and sensible. Without their support now, he would collapse. It was getting cold and empty inside.

You have always been a lonely man, Warner told him. *Your life has been nothing but facts.*

That was true. He had Lou, of course. But who else was there. Funny how it had never mattered to him before. He had not been the friend-making type. Time had slipped by him.

There are other skills, said Marisse. *There are other things to see.*

What? Barn asked.

People. There was a different twitch in Barn's mind. *We can awaken other parts of you, give you bits of our skills. There is a great need on this planet for empathy. It is an intuition, an awareness.* Another discussion. *It will be done.*

His mind was an empty cavern, whistling with faint echoes. Barn sensed they had taken all they needed now. It was strangely quiet, without the song.

Then another force moved. *It will feel like pain.*

It grappled him, shouldering through small, tight places. Walls shuddered apart, crumbled and were washed away in the rushing currents. His mind rocked, seized by a forced, fast growing which stretched him so hard that it did feel like pain. Bright fire flooded his screaming voice under the hot white lights and the thin unbreathable air. The world was a sea of faces staring, rushing up over the edges of the loneliness and flowing over. The sound grew louder. It was not the whirring of words, it was voices. He saw its shape now—

The supports that had held him steady fell away, overpowered. His body and brain flooded with too-long ignored fatigue, crying out for hiatus and the chance to absorb what had happened. Just before

The Analytical Laboratory • July 1976

Place	Title	Author	Points
1	Tricentennial	Joe Haldeman	2.333
2	Minotaur in a Mushroom Maze, Conclusion	Richard & Nancy Carrigan	2.384
3	His Loyal Opposition	Stanley Schmidt	2.471
4	Dolls' Demise	George Guthridge	3.830
5	Fly	Mal Warwick	3.851

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unconsciousness took him, bringing blackness beyond sleep and dreams, Barn sensed Marisse and Warner taking their leave, and he knew it was not pain, after all.

"Barn, Barn." Lou's voice. He was back. The ground was cold and hard below him. Barn felt people nearby. Right, he was backstage, lying on a table. Lou touched his arm.

"Are you all right?"

Barn opened his eyes and saw Lou's worried face. A long lock of hair had drifted down across his forehead. "I'm okay, I guess. They gone?"

"Yes."

Barn was surrounded by old scenery and music stands. The several students who had gathered nearby were moving back, now that he had awakened. They were confused; their memories of the evening were already fading. He got to his feet. "Where's my coat?" Somebody handed it to him. Dr. Jeffries was looking the other way, worrying over the misfire of the evening's program. Barn nodded to Lou. "Let's get going."

Outside, in the cool autumn night, they walked down to the lake where ducks were swimming.

"What were you doing in their apartment?" Barn asked.

"Ah, I'm too old to play detective. It's my old newspaper instincts, I guess. The stuff they had there! What the hell will they do with all the information?"

"Use it."

"Vultures. What's a word for something that eats knowledge?"

Barn considered. "Some kind of phage, I suppose. Bibliophage? No, that's just a bookworm. Sapiphage? That's Latin and Greek. Will it do?"

"Bastard word. Fits 'em fine."

"No it doesn't." Barn knew he had to stop Lou from being bitter. "Fits us just as well, you know."

Lou looked at him. "Still?"

"You know." Lou nodded. "You're right, that's all over now." Barn was surprised by how easily he said it.

Lou threw a pebble in the water. "I found them," he said. "It wouldn't have happened if I hadn't snooped around their place."

"They would have found me anyway." Barn put a hand on Lou's shoulder. "It's not your fault."

They looked up at the sky. "*Why?*" Lou demanded.

"Nobody likes social workers," Barn said. "But maybe we need them. They meant well. I *know.*"

"Oh."

Lou led the way back up the hill. "So what do we do now?"

"I'm not exactly sure," Barn said. The cool night air felt good in his throat. "There's a new business waiting for us. Some form of counseling. People-type work. You'll figure something out for us, I'm sure. They need us out there." ■

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SHADRACH in the FURNACE

JOHN SCHOENHERR

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Conclusion. Human beings are very much aware that no man lives forever. It's more difficult to see that no institutions are immortal, either.

ROBERT SILVERBERG

SYNOPSIS

Shadrach Mordecai, born in Philadelphia in 1976, is thirty-six years old, tall, slender, agile, and black. His current place of residence is Ulan Bator, Mongolia, which in the year 2012 is the capital of the world. By profession he is a doctor. Shadrach Mordecai has just one patient: Genghis II Mao IV Khan, Prince of Princes, Chairman of the Permanent Revolutionary Committee, ruler of the earth.

Shadrach has been Genghis Mao's personal physician for several years. It is a taxing job, for the Chairman, a lean and charismatic Mongol, is a man of great age—some say 80, some say he's past 100—whose body, although amazingly tough and resilient, is a patchwork of artificial and transplanted organs that is constantly in need of surgery. Genghis Mao wishes not to die until his work of organizing mankind is complete, that is to say, never. In order better to look after his extraordinary patient, Shadrach has consented to have an array of subminiaturized sensors implanted in his body: they bring him a constant flow of telemetered data, minute-by-minute reports on the state of Genghis Mao's health. It is a taxing round-the-clock responsibility, but there are advantages. Shadrach, as a member of the elite surrounding the Khan Genghis Mao, is entitled to be treated with the Roncevic Antidote, which makes him immune to organ-rot, a loathsome disease that plagues the rest of the world's population—two billion survivors of the Virus War of the 1990's. It was the Virus War that let the organ-rot loose on the world, destroyed the traditional structures of government everywhere, and opened the way for the coming to power of Genghis Mao.

Another of Shadrach's responsibilities is to oversee the three projects by which Genghis Mao hopes ultimately to cheat death. The old warlord, a believer in redundancy as the main avenue of survival, knows that he can last only so long on constant organ transplants, and so he has established these parallel programs:

Project Phoenix, *which seeks a body-renewal technique that will allow rejuvenation of the living cellular matter of Genghis Mao. Its director is Irayne Sarafrazi, a Persian gerontologist.*

Project Talos, *which is attempting to develop a mechanical analog of Genghis Mao operated by a digitalized equivalent of the Khan's mental process. It is led by Katya Lindman, a somber and fiery woman with whom Shadrach is always un-*

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comfortable, though he has had brief affairs with her.

Project Avatar, *the goal of which is to perfect a personality-transfer technique that will permit the consciousness of Genghis Mao to be transplanted into another, younger body. In charge here is Nikki Crowfoot, a handsome woman of Amerindian ancestry. She and Shadrach are lovers.*

Of the three projects, the one closest to success is Avatar. Preliminary experiments have worked well, and matters have gone so far that the future recipient of Genghis Mao's spirit has already been chosen. He is Mangu, Genghis Mao's young, athletic, amiable viceroy. This is a secret known only to a few, and known not at all to Mangu, who confidently expects to succeed Genghis Mao, and will, but not in the way he is expecting: the consciousness of the Avatar donor-body will be extinguished before Genghis Mao's mind is transplanted into it.

At the Grand Tower of the Khan, Genghis Mao's skyscraper headquarters, Shadrach and a team of surgeons perform a successful liver transplant on Genghis Mao on the morning of May 14, 2012. For relaxation afterward, he and Nikki Crowfoot go off to Karakorum, the pleasure-city of the ruling elite. There they indulge in transtemporalism, a popular cult of the day, a kind of drug-induced spell taking the participant into history. Shadrach finds himself witness to the eruption of Cotopaxi, an Ecuadorian volcano, whose spectacular explosion in 1991 served as symbolic herald of the apocalyptic war that destroyed civilization; Crowfoot experiences the burning of Joan of Arc. Afterward, still in the grip of his powerful experience, Shadrach is harangued by Roger Buckmaster, the microengineering expert who designed his telemetering implants. Buckmaster, evidently now in the grip of revolutionary urges, assails Shadrach for helping to prolong Genghis Mao's life, calling him a Judas. Shadrach, defending his role as the Khan's doctor, breaks free at last and returns to Ulan Bator.

Where he is awakened, the next morning, by a tremendous internal jolt: Genghis Mao's body is telemetering a furious alarm reaction. Rushing to the Khan's side, Shadrach discovers him surrounded by underlings and struggling against severe shock touched off by a surprising event. Mangu, Shadrach learns, has just fallen from his 75th-story bedroom window in the Grand Tower.

Or was he pushed? Genghis Mao, tense and trembling, is positive that the viceroy was assassinated and that Ulan Bator is honeycombed with conspirators out to get him next. Even as Shadrach struggles to restore the Khan's tranquility, Genghis Mao is ordering mass arrests, wholesale interrogations, tightened security measures.

After leaving Genghis Mao, Shadrach talks briefly with Avogadro, the cool, ironic security chief. Avogadro sees no way that assassins could have reached Mangu. It must have been suicide, he says. Nevertheless, Avogadro will follow orders: arrests will be made. In fact, within minutes the first suspect is taken

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into custody. He is Buckmaster, the microengineering man. Tapes of his inflammatory outburst at Karakorum have been recorded; his hostility to Genghis Mao, so freely expressed, makes him a likely scapegoat for Mangu's death.

Shadrach is summoned by Avogadro to Buckmaster's interrogation. The Karakorum tape is played. Buckmaster agrees that he spoke out against Genghis Mao, but denies any connection with the supposed assassination of Mangu. Shadrach believes he is sincere. So does Avogadro; but Genghis Mao's wrath must be appeased. Shadrach's pleas on Buckmaster's behalf leave Avogadro unmoved. The interrogation ends. Buckmaster will be sent to the organ farms—where he will be dissected so that his organs will be available for transplant use. "Go and relax," Avogadro tells Shadrach. "I have work to do. I have a dozen more suspects to question before dinner."

"And the real murderer of Mangu—"

"Was Mangu himself, nine to one. What's that to me? I'll continue to find his killer and interrogate him and ship him to the organ farms until I'm told to stop. Go, now. Go. Go."

Buckmaster and scores of other "conspirators" are found guilty and sent to the organ farms. Genghis Mao consoles himself for Mangu's death by planning an immense state funeral for the viceroy, a virtual deification. Shadrach finds brief escape from the insane atmosphere of Ulan Bator by going to Karakorum with Katya Lindman of Project Talos. They take part in the surreal drug-stimulated amusement known as dream-death together; afterward, having spent the night with Katya, Shadrach awakes to find her sobbing—an uncharacteristic thing for that strong-willed, chilly woman. She is afraid—for Shadrach's sake, she says. But she will not tell him why.

Shadrach finds himself now estranged from Nikki Crowfoot, and she will not tell him why either; but she is avoiding him, and seems evasive whenever he speaks to her. Shadrach puts these problems aside momentarily when Genghis Mao develops an aneurysm requiring aortic surgery.

Then Katya Lindman begins the process of illumination for Shadrach by telling him what really happened to Mangu. She confesses that she told the viceroy he had been chosen to give up his body to Genghis Mao when the Avatar process was perfected; Mangu, in terror or anger, leaped from his window. And Katya gives Shadrach an even more startling piece of information. With Mangu gone, Genghis Mao has chosen a new donor for Avatar. The new donor is Shadrach.

Shadrach finds it impossible to believe. Would the Khan sacrifice his doctor simply to have his body? Katya offers persuasive arguments showing that he would. Shadrach, stunned, withdrawing into his office to contemplate the situation, tries to understand the mind of Genghis Mao, going as far as to dictate imaginary portions of the Khan's memoirs in an attempt to fathom the unfathomable dictator. Eventually he

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confronts Nikki Crowfoot, who sheepishly admits that the Avatar equipment is indeed being retooled for Shadrach's parameters. She has been avoiding him out of guilt over collaborating in his doom. He upbraids her for her callousness, but she convinces him that she, like everyone else, is powerless to thwart the will of Genghis Mao.

Shadrach's friends in Ulan Bator urge him now to flee, to go into hiding. Shadrach shrugs. Where could he go? Genghis Mao's electronic surveillance equipment is everywhere. Not so, says Frank Ficifolia, designer of the main spy device. Eyes are everywhere, but there are ways of foiling the machines that do the watching. For example, Buckmaster is not dead; he was spirited off safely and is living underground. They can do the same for Shadrach. But Shadrach does not like the idea of vanishing. He is upset at having been chosen as the Avatar patsy, but he wants to stand his ground, to work from within the system to regain his place at Genghis Mao's side. He insists that he will stay in Ulan Bator, even though his position there has suddenly become untenable, even though the ground has turned to quicksand beneath him.

Part Three

He has been saying for days that he will not run away. He has said it to Ficifolia, to Horthy, to Nikki, to Katya, to all of the well-meaning friends who want him to try to save himself. But then he decides to get out of Ulan Bator after all.

It is not exactly an escape attempt, for Shadrach still believes there is no way ultimately of avoiding the spy-eyes of Genghis Mao. He will not try to be secretive about it: he intends even to notify the Chairman himself that he is going. No, it is more like a holiday trip, a vacation. Shadrach is going to go because of that remark of Horthy's—*some people think better when they're on the run*—and because Nikki, once again bringing up her notion that he and Genghis Mao constitute a single system, has given him some ideas. He is not sure how useful the ideas may be, and he needs to consider them at length. Perhaps he really will think better on the run. He will go, at any rate. He looks forward to the trip. It will be a diverting entertainment, and possibly instructive as well. He feels buoyant and cheerful. Shadrach the Glorious, striding splendidly from continent to continent in what may very well be the last great adventure of his life.

In the evening he visits Genghis Mao. The Khan is making his usual magnificent recovery from his latest surgery. He looks a little feverish, a trifle flushed, his keen narrow eyes unnaturally glossy, but generally he appears hale, vigorous, alert. He has spent much of the day going over the plans for the spectacular state funeral of Mangu, postponed on account of the aortal transplant and now scheduled for ten days hence. As Shadrach runs through his brisk diagnostic routines, the palpation and the auscultation and all the rest, Genghis Mao, shuffling documents and pay-

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ing no attention to his physician's earnest probings, speaks with bubbling boyish enthusiasm of the great occasion. "Fifty thousand troops massed in the plaza, Shadrach! Rockets going back and forth overhead, flights of military planes, a thousand flags, six separate marching bands. Lights, color, excitement. The whole Committee on the dais under a tremendous purple-and-gold spotlight. The catafalque drawn by thirteen wild Mongol mares. Platoons of archers, a canopy of fiery arrows. An immense pyre on the very spot where Mangu fell. Teams of gymnasts who—" The Khan pauses. "You aren't going to find something new to slice out of me, are you? I don't want any more surgery just now. The funeral mustn't be postponed a second time."

"I see no reason why it should be, sir."

"Good. Good. It's going to be an event to be remembered for centuries. Whenever a great man dies, they'll talk about giving him a funeral 'as great as the funeral of Mangu.' You'll sit beside me on the dais, Shadrach. At my right hand. A special mark of my favor, and everyone will know it."

Shadrach takes a deep breath. This may be difficult.

"With your permission, sir, I intend not to be in Ulan Bator when the funeral takes place."

The imperial eyebrows lift in surprise, but only for a moment.

"Oh?" says Genghis Mao, finally.

"I want to get away for a while," Shadrach tells him. "I've been under a lot of stress lately."

"You do look pale," the Khan says dryly.

"Very tense. Very tired."

"Yes. Poor Shadrach. How devoted you are."

"You've grown much stronger since the liver transplant, sir. You won't be needing me on a day-by-day basis in the weeks just ahead. And of course I could get back to Ulan Bator in a hurry if there's any emergency."

The beady eyes study him calmly. The Khan is oddly undisturbed by Shadrach's announcement, it would seem. There is something mildly disquieting about that. Shadrach does not want to be indispensable, with all the burdens that indispensability entails, but on the other hand he wishes the Khan would *think* of him as indispensable. His only salvation now lies in indispensability.

"Where will you go?" Genghis Mao asks.

"I haven't decided that yet."

"Not even tentatively?"

"Not even tentatively. Away from here, that's all I know."

"I see. And for how long?"

"A few weeks. A month, at most."

"It will be strange, not having you at my side."

"Then I have your permission to go, sir?"

"You have my permission. Of course." The Khan smiles serenely, as if very satisfied with his own graciousness. And then a sudden mercurial shift, a darkening of the face, furrowing of the forehead, a tense fretful gleam coming into the eyes. Second thoughts? Yes. "But

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what if I do fall ill? Suppose I have a stroke. Suppose my heart. My stomach."

"Sir, I can return at once if–"

"It worries me, Shadrach. Not having you close by." The Khan's voice is hoarse, ragged, almost panicky now. "If organ rejection starts. If there's some intestinal obstruction. If my kidneys begin to fail. You know of trouble so soon, you react so swiftly. If–" The Khan laughs. His mood seems to be shifting again; the fears of a moment ago vanish abruptly, and a strange blank smile plays across his face. In a new, sweet voice he says, almost crooning, "Sometimes I hear voices, Shadrach, did you know that? Like the saints, like the prophets. Invisible advisers come to me. Whispering. Whispering. They always have, in time of need. To warn me, to guide me."

"Voices, sir?"

Genghis Mao blinks. "Did you say something?"

"*Voices*, I said. You were telling me that you sometimes hear voices."

"I said that? I said nothing about voices. What voices? What are you talking about, Shadrach?" Genghis Mao laughs again, a low, harsh, baffling laugh. "Voices! What madness! Well, let's not trouble ourselves with such foolishness." He cranes his neck and peers straight up at Shadrach. "So you'll be having a vacation from the old man and his complaints soon, will you?"

Shadrach is sweating. Shadrach is terrified. Is this some kind of psychotic break, or merely one of Genghis Mao's games?

"A short vacation, yes, sir," he says uncertainly.

The Chairman looks momentarily wistful. "Yes. But to miss the funeral, though–such a pity–"

"I regret that," Shadrach says. "But I do need to get away."

"Yes. Yes. By all means. Take your trip, Shadrach. If you do need to get away. If you do. Need to get away."

There. Done. Shadrach sighs. An uneasy moment or two, but he has his permission to depart.

Strange. That wasn't really so difficult at all.

May 29, 2012. Such a long face on Shadrach when he came out with the business about his vacation. Terrified of me. Afraid I'd refuse, I guess. What would he have done if I'd said no? Go anyway? He might. He seems desperate. Had that look in his eye, trapped man fighting in a corner. One must always be wary of those. Control your opponent, yes, but don't trap him in corners. Give him plenty of space. That way you give yourself plenty of space, too.

I wonder why he's going.

Tired, he said. Tense. Well, maybe so. But there's more to it than that. It has to have something to do with Avatar. Is he thinking of disappearing? He's too bright for that. Must know he can't disappear. What then? Rebelliousness? Wants to see what happens if he walks in and tells the old man he's taking off for a month to points unknown? Naturally I wouldn't refuse. Much more interesting to allow him to leave

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and see what he does next.

First flicker of independence poor Shadrach's ever shown. About time, too.

What if I get seriously ill while he's gone?

Heart. Liver. Lungs. Kidneys. Cerebral hemorrhage. Pleurisy. Acute pericarditis. Toxic uremia. So fragile, so flimsy, so vulnerable, this body, just chunks of meat strung together. Capable of falling apart overnight.

Mustn't worry about that. I feel fine. I feel fine. I feel fine. I am in extraordinarily good health.

I am not dependent on Shadrach Mordecai.

I am not dependent on Shadrach Mordecai.

And what if he knows some way of actually disappearing? I suppose there's at least a slight chance of that. What becomes of Avatar, then? Find another donor? But I want *him*. Whenever I see him, I think of how fine his body is, how agile, how elegant. I mean to wear that body some day, oh, yes!

Should I therefore let him get out of my sight?

No one can get out of my sight. Right.

Anyway, I *know* Shadrach. It doesn't worry me, this trip of his. He'll go, he'll have his fling, and then he'll come back to me. Of his own free will. He'll come back, all right. Yes. Of his own free will.

It is time to think of choosing of destinations. Shadrach can go anywhere in the world, and no concern for the cost; he is a member of the ruling elite, is he not, Antidote-blessed, an aristocrat in a world of rotting plebes. But where shall he go?

He heads for Surveillance Vector One to consider his options.

Though he has often paused before the screens of Surveillance Vector One for a random dip into the activities of the outer world that he calls the Trauma Ward, this is the first time that Shadrach has actually seated himself in the imperial throne from which the great spy-eye apparatus is controlled. Scores, perhaps hundreds, of colored buttons confront him: a bank of red ones, a wedge of green ones, yellow, blue, violet, orange. His hands hover above them like those of a novice organist approaching a full keyboard for the first time. Nothing is labeled. Is there a system? All about the room, images whirl and flit on the myriad screens, zipping by at unfathomable variable rates. Shadrach pokes a green button. Has anything been accomplished? The screens still seem random. He covers dozens of green buttons with both palms outstretched. Ah. Now there seems to be a detectable pattern of response. One slice of screens high up and to his right is showing unmistakably European cities—Paris, London, maybe Prague, Vienna, Stockholm. The color-coding, then, may be keyed to continents.

Leaving the green keys depressed, Shadrach punches a bunch of orange ones. A systematic search through the whirling madness of the blinking screens shows him, eventually, a bloc of North American scenery far to his left—glimpses

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of Los Angeles, surely, and New York, and Chicago, Boston, Pittsburgh. So. Yes.

Half an hour of patient, absorbing work and he has mastered the system: he is a quick study. Violet is Africa, yellow is Asia, red is Latin America, and so on. He discovers, also, that there are certain master buttons—the red of red, so to speak, the blue of blues—which, when punched, wipe from the screens all data on continents other than the one covered by keys of that color, so that one need not contend with the crazy oversufficiency of information that the whole of Surveillance Vector One is capable of supplying. He learns, also, how to summon images of particular cities: the keys within each color-group are arranged in a geographical analog of their actual positions, and by activating a screen at his left elbow he can call for maps, divided into grids that show him which buttons to push. And then he systematically examines the Trauma Ward to see where he wants to go.

The famous cities of the world, yes. The ancient capitals. Rome? Of course. He punches for it. The Colosseum flashes by, the Forum, the Spanish Steps. Yes. And Jerusalem, yes, one glimpse is enough. He considers Egypt and punches for Cairo, but rejects it when he sees the beggars shambling about the base of the Great Pyramid, their blind eyes crusted with swarming flies. He has heard rumors about Egypt, and they seem to be true: organ-rot does not frighten him, but he has no antidotes for that ghastly trachoma, for the endemic bilharziasis, for the thousand other Cairene plagues that the screens show him. The healer in him might be willing enough to go to Egypt for a laying on of hands, a spraying on of medicines, but this is meant to be a holiday, he is going abroad not as a doctor but as an anti-doctor, and he shies from that challenge. No Egypt. But he chooses Istanbul after a view of the plump mosques rising from the hills; he picks London; bypasses his native Philadelphia and, with a shudder, New York; elects San Francisco; and finally Peking. The grand tour. The great adventure.

He sleeps alone that night, and

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for a change he sleeps well, as if the prospect of world-girdling travel has perversely calmed his restless spirit. Before dawn he awakens, does some perfunctory calisthenics, packs quickly, taking little with him. The green face of the data screen tells him it is

Friday • 1 June • 2012

He does not bother with farewells. Just as the sun breaks the horizon he summons a car and is taken to the airport.

June 1, 2012. I did tell him about the voices after all. Despite earlier resolves. Should I have told him? But he didn't take me seriously. Do I take me seriously? Do I take *them* seriously? Perhaps they are symptoms of some grave mental disorder. But were the saints mad too, then? The voices whisper to me. They have always come to me in times of crisis. During the Virus War I heard them most clearly. One voice said, I am Temujin Genghis Khan, and you are my son, and you shall be Genghis II. A voice of thunder, though he only whispered. And I am Mao, another voice said, smooth as silk. You are my son, Mao said, and you shall be Mao II. But we had already had a Mao II, nasty little coward, completely destroyed his country with his idiocies, and there was even a Mao III, briefly, during the days just before the outbreak of the Virus War, so I answered Mao, I told him he was behind the times, it was too late for me to be Mao II, I must become Mao IV. He understood. So they blessed me and anointed me. Genghis II Mao IV, I became. So my voices dubbed and ordained and anointed me. And they have guided me. Is it a sign of schizoid disturbance to hear disembodied voices? It could be. Am I schizoid, then? Very well, I am schizoid. But I am also Genghis II Mao IV, and I rule the world.

No flights are due to depart that morning, Shadrach learns, for Jerusalem, Istanbul, Rome, or any plausible connecting points to those destinations. There is a flight to Peking soon, but Peking is too close to Ulan Bator and Chinese look too much like Mongols; just now he needs a total change of scene. There is a flight a little later on to San Francisco, but San Francisco is awkwardly placed in respect to the rest of his itinerary. And there is a flight leaving almost immediately for Nairobi. Somehow Shadrach had not considered going to Nairobi at all, nor any other black African city, despite the vaguely felt ancestral ties. But spontaneity, he tells himself, is good for the soul. Right at this moment the idea of going to Nairobi seems oddly appealing. Impulsively, unhesitatingly, he boards the plane.

He has not left Mongolia for two and a half years, not since the time Genghis Mao unexpectedly decided to preside in person over a vast and meaningless Committee congress being held at the dilapidated old United Nations headquarters in New York. Shadrach was not yet the Khan's personal physician then—a shrewd, diplomatic Portu-

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guese internist named Teixeira had that job—but Teixeira was placidly dying of leukemia and Shadrach was being phased in slowly as his replacement. Ostensibly Shadrach went to New York as a mere junior medic, a spear-carrier in the Khan's huge retinue, but when Genghis Mao came down with a hypertensive attack after delivering a six-hour harangue from the podium of the former General Assembly chamber, it was Shadrach who coped with the problem while Teixeira lay doped and useless in his suite. Genghis Mao, having subsequently invented Mangu to handle such ceremonial chores as Committee congresses, has stayed close to Ulan Bator ever since. So has Shadrach. But now he finds himself watching through the porthole of a supersonic transport plane as the bleak Mongol steppe rapidly retreats far below. In just a few hours he will be in Africa.

Africa! Already the telemetered signals from Genghis Mao blur and fade as Shadrach approaches the thousand-kilometer boundary. He still picks up data, feeble clicks and bleats and pops out of the implant system, but as the plane streaks southwestward it becomes harder and harder for Shadrach to translate them into comprehensible analogs of the Chairman's bodily processes: Genghis Mao, his kidneys and liver and pancreas, his heart and lungs, his arteries, his intestines, have become remote, are becoming unreal. And soon the signals are gone altogether, dropping below the threshold and leaving Shadrach suddenly, amazingly, alone in his own body. That crash of silence! That absence of subliminal input! He had forgotten what it was like, not to have those steady burbling pulses of information flowing through his consciousness, and in the first moments after leaving telemeter range he feels almost bereft, as if he has lost one of his major senses. Then the inner silence begins to seem normal and he relaxes.

The plane is comfortable—a wide rump-gripping cushion of a seat, plenty of leg room. Probably it is about twenty years old; certainly it is pre-Virus War. Many industries have disappeared since the war, and the aircraft industry is one of them. The greatly reduced postwar population can easily make do, given a proper maintenance program, with the planes it inherited from the crowded, hectic world of the 1980's, when the old industrial economy was going through its last great period of convulsive expansion amid, paradoxically, dreadful shortages and dislocations. Not that the war and the organ-rot have brought an end to technological progress: in Shadrach's time fusion power has rescued the world from its energy crisis, subterrene borers have created an entirely new mass-transit-tunnel system for most urban areas, communications systems have become immensely sophisticated, the computerization of civilization has been well-nigh completed, and so on. Progress continues. Things are different but not utterly different. Even corporations and stock exchanges have survived. There has not been a total

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break with the old days, merely because two thirds of the former population has perished and a wholly new quasi-dictatorial political structure has been imposed upon the remnant. But this is a contracting society, daily diminished by the inroads of organ-rot and oppressed by a certain sense of stagnation and futility that the regime of Genghis Mao does not appear to know how to dispel, and such a society does not need new jet transports while the old ones still can fly.

June 1, continued. If the ruler of the world is schizoid, doesn't this have serious consequences for his subjects? I think not. I've studied history closely. Throughout all of history people have gotten the rulers they deserved, the *appropriate* rulers. A sovereign mirrors the spirit of his times and expresses the deepest traits of his people. Hitler, Napoleon, Attila, Augustus, Ch'in Shih Huang Ti, Genghis Khan, Robespierre: none of them accidents or anomalies, all of them organic outgrowths of the needs of the time. Even when a ruler imposes his will by conquest, as I have not, the historical imperative is at work: those people *wanted* to be conquered, *needed* to be conquered, or they would not have fallen to him. So too now. Schizoid times demand schizoid government. The people of the world are dying lingering deaths of organ-rot; an antidote exists but we do not put it into widespread distribution; the people of the world accept this situation. I define that as madness. A mad government, then, for a mad citizenry, a government that offers *promises* of antidotes but never delivers. Of course there isn't enough antidote to go around. But there's some to spare. We do not give priority to expanding the supply. We offer hope but no injections, and this somehow sustains our subjects. Madness. A world that destroys itself with cloud-borne antigens is mad; one that gives itself over to an oligarchy of strangers is mad; fitting then that the oligarchs themselves are mad.

But are we? Am I? I have done some research into the symptoms of schizophrenia this morning, consulting Shadrach's medical library in Shadrach's absence. Here I have a text that says that two of the most common symptoms are delusions and hallucinations. "A delusion," I am told, "is a persistently held belief, contrary to reality as it is perceived by most people, that is not dispelled by logical arguments. Delusions in schizophrenia often have a grandiose or a persecutory theme: the individual may express a belief that he is Jesus Christ or that he is the object of a worldwide search by a supersecret organization." I have never expressed the belief that I am Jesus Christ. I do frequently believe with great conviction that I am Genghis II Mao IV Khan. Is this belief delusive? I believe that this belief is congruent with reality as it is perceived by most people. I believe that my belief in this belief is founded in reality. I believe I genuinely am Genghis II Mao IV Khan, or that at least I have genuinely

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become Genghis II Mao IV Khan, and that therefore this belief is not schizophrenic, not delusive. On the other hand I also believe I am in imminent danger of assassination, that there is a worldwide conspiracy against my life. Classic schizoid delusion? But Mangu is really dead. They pushed Mangu from a window seventy-five stories above the ground. Do I imagine Mangu's death? Mangu is really dead. Do I misconstrue it? I know there are those who believe he committed suicide. This is delusive. Mangu was murdered. They might come for me at any time. Despite all my precautions. Am I deluded? Then I accept my delusions. As appropriate to my position in history. And if the danger is real, how wise of me to have barricaded myself behind the Interfaces!

Let us go on. Hallucinations. "A hallucination is a perception of sight, sound, smell, or touch that is not 'real.' In schizophrenia, hallucinations most frequently take the form of voices." Aha! "A patient may be tormented by voices ordering him to jump out of a window or accusing him of heinous crimes." What's this about windows? Could Mangu have been schizoid too? No. No. It doesn't apply. Mangu wasn't intelligent enough to be schizoid. I'm the one who hears voices, and my voices don't advise lunacy. "Sometimes the hallucination consists only of noises or isolated words, or the patient may seem to 'hear his thoughts.' Other hallucinations include frightening visions, strange smells, and odd bodily sensations."

I think this applies. If so, I accept it freely. But there's more. "Delusions and hallucinations are not limited to schizophrenia," it says. "They may occur in a wide range of organic conditions (e.g., infections of the brain substance or a decreased flow of blood to the brain caused by arteriosclerosis)." Is that the explanation? When Father Genghis whispers to me, it's nothing but a bug in my cerebellum? When Mao whispers in my ear, it's merely a clotted artery? I should speak to Shadrach about this when he returns. He worries about my arteries. He might want to do another transplant. After all, I still have some of my own original blood vessels, and they're getting old. I'm, what, 87 years old? 89, 93? Yes, perhaps 93. So hard to keep the numbers straight. But old, very old.

Great Father Genghis, am I old!

In Nairobi the air is clear, dry, cool, not at all tropical although the city is only a degree or so from the Equator, just about the same latitude, indeed, as fiery Cotopaxi and ravaged Quito. Quito, high in mountainous country, was cool also, but that was only a dream, a transtemporal illusion. Whereas Shadrach actually is, so far as anything is actual, in Nairobi. "We are much above sea level," explains the taxi driver. "It is never too hot here." The taxi man is hearty, outgoing, talkative: a Kikuyu, he says, this being his tribe. He wears huge dark sunglasses and a blue uniform

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that looks fifty years old. He seems healthy, although Shadrach had been half expecting to find everyone outside Ulan Bator afflicted with organ-rot. "I speak six languages," the driver announces. "Kikuyu, Masai, Swahili, German, French, English. You are British from England?"

"American," Shadrach says, though the label sounds odd in his ears. What else is he to answer, though? Mongol?

"American? Ah! New York? Los Angeles? Once we had plenty Americans here. Before the big death, you know? That plane they come in, it was big, too big, it was always full, all those Americans! They come to see the animals, you know? Out in the bush. With cameras. Not anymore. Long time, no Americans here. No anybody here." He laughs. "Different times, now. Too bad, these times. Except for the animals. Good times for the animals. You see, there, by the road? Hyena. Right by the road!" He points.

Yes, Shadrach sees: a lumpy, sinister beast, like a small ungainly bear, squatting at the edge of the highway. The driver tells him that there are wild animals everywhere now, ostriches strutting down Nairobi's main streets, lions and cheetahs preying on the suburban farmers, gazelles moving in huge fluttery herds across the university campus. "Because there are not enough people now," he says. "And most of them too sick. Not much hunting now. Last week, big elephant, ripped up thorn tree in front of New Stanley Hotel. Very old thorn tree, very famous. Very big elephant." Of course. With the world's population cut back now to early nineteenth century levels, the animals would be starting to reclaim their domain. The Virus War had left them unscathed, even the primates closest to man: only the unlucky human chromosomes could harbor the rot.

On the way to the city he sees more animals, two stunning zebras, some wart-hogs, and a group of heavy-humped spindle-shanked antelopes; these are wildebeests, the driver informs him. It pleases Shadrach to observe this resurgence of nature, but the pleasure is tainted by sadness, for if wildebeests graze on the margins of great highways and grass grows in city streets, it is because the time of man is coming to its end, and Shadrach is not ready for that.

Actually not much grass is growing in the streets of Nairobi, at least not on the broad, elegant boulevard on which the taxi enters town. Flowering shrubs erupt in beauty on all sides. After monochromatic Ulan Bator, Nairobi is a visual delight. Bougainvillea, red and purple and orange, cascades over every wall; some creeping succulent with densely packed lavender blossoms carpets the islands in the roadway; thick, many-tentacled aloe trees stand like sentinels at streetcorners; he recognizes hibiscus and jacaranda, but most of the bushes and trees that fill the streets with such gaudy masses of color are unknown to him. The effect is gay and sparkling and unexpectedly moving: who could feel despair, he

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wonders, in a world that offers such intensity of beauty? But in that moment of transcendent joy that the glowing flowers of neatly manicured Nairobi create comes its own instant negation, for Shadrach asks himself also how, having been turned loose in this beautiful world, we could have contrived to make such a woeful mess out of so much of it. Nevertheless this serendipitous city inspires more pleasure than gloom in him.

Through flowery sun-loved Nairobi rides Shadrach Mordecai in an old rump sprung taxi to his hotel, the Hilton, an aging cavernous place where he may well be the only guest. The hotel staff treats him with extraordinary deference, as though he is some visiting prince. In a way he is, to these people. They know he lives at the capital and travels on a PRC passport; probably they conclude from that that he must sit at the right hand of Genghis Mao, which in truth he does, though he is not a part of the government at all. Yet even those who have not seen his passport regard him with awe, here. They pause at their work in corridors, and turn and look. They whisper among themselves. They nod, they point. Shadrach is reminded again of what he tends often to forget: that he is a man of great presence and dignity, capable and self-assured and of striking physical appearance, who radiates an aura that leads others to defer to him. It is hard, living in the shadow of Genghis Mao, to remember that one is a person oneself, even a considerable person, and not merely an extension of the Chairman. In Nairobi he learns it anew.

Strolling about the city half an hour after checking in, he makes another discovery of the obvious: everyone here is black. Almost everyone, at any rate. He notices a few Chinese shopkeepers, a couple of Indians, a few elderly whites, but they are exceptions, and they stand out as clearly as he does in Ulan Bator. Why should the negritude here surprise him? This is Africa; this is where people are black. And it was the same, really, when he was a boy in Philadelphia—whites rarely ventured into his neighborhood, and at least in early childhood it was easy for him to assume that the ghetto was the world, that black was the norm, that those occasional creatures with pink faces and blue eyes and loose, lank hair were freakish rarities, like the giraffes in his picture-book. But this is no ghetto. It is a nation, a universe, where the policemen and the schoolteachers and the Committee delegates and the firemen are black, the engineers at the fusion plant are black, the brain surgeons and the optometrists are black, black through and through. Brothers and sisters everywhere, and yet he is apart from them, he feels not kinship but surprise at the universality of the blackness. Possibly he has lived in Mongolia too long. Living in that polyglot multiracial amalgam that surrounds Genghis Mao, he has lost some degree of his own racial identity; and, living in the midst of millions of Mongols, he has developed some

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heightened sense of himself as outsider, as freak, that leaves him alienated even among his own kind. If these people, speakers of Swahili, intimates of ostrich and cheetah, bloodlines undiluted by slavemaster genes, can be said to be his own kind.

He discovers yet another obviousness: that Nairobi is not just beautiful boulevards and clear vibrant air, not just bowers of bougainvillea and hibiscus. This place is, however lovely it may be, still very much a part of the Trauma Ward, and he does not need to walk far from the precincts of his hotel to find the sufferers. They straggle through the streets, scores of them, in all phases of the disease, some merely pallid and sluggish, showing the first bafflement at the onrushing crumbling of their bodies, and some bowed and shrunken and dazed, some already hemorrhaging, dizzy with pain and flecked with the shiny sweat of imminent death. Those in the late stages travel in solitary orbits, each shambling alone through the streets, God knows why, struggling with incomprehensible determination to reach some unattainable destination before the final breakdown overtakes them. Often the organ-rot victims pause and stare at Shadrach, as if they know he is immune and want from him some gift of strength, some charismatic infusion, that will clothe them in the same immunity, that will heal their lesions and make their bodies whole. But there is nothing particularly reproachful or envious in their gaze: it is the calm, steady, equable look that one sometimes gets from grazing cattle, unreadable but not threatening, with no hint in it that they hold you guilty of the slaughterhouse.

At first Shadrach cannot meet that level stare. He was taught, long ago, that a doctor must be able to look at a patient without feeling apologetic for his own good health, but this is a different case. They are not his patients, and he is healthy only because his political connections give him access to protection they cannot have. He is curious about organ-rot—it is the great medical phenomenon of the age, the latter-day Black Death, the most terrible plague in history, and he studies its effects wherever he encounters them—but neither his curiosity nor his medical detachment is enough to let him look straight at these people. He gives them only darting sidewise glances until he realizes that his feelings of guilt are irrelevant. These lurching wrecks don't care if he looks at them. They are beyond caring about anything. They are dying, right out here in public; their bellies are ablaze, their minds are fogged; what does it matter to them if some stranger stares? They look at him; he looks at them. Invisible barriers screen him from them.

Then the barriers are breached. Shadrach turns away momentarily from the procession of the damned to investigate the window of a curio shop—grotesque wood carvings, zebra-skin drums, elephant's-foot ashtrays, Masai spears and shields, all manner of native artifacts mass-produced for the tourists who no

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longer come—and someone gives his elbow a sharp stinging blow. He whirls, instantly on guard. The only person at all near him is a small withered old man, chalky-skinned, rag-clad, white-haired, fleshless, who is moving back and forth in front of him in an erratic semicircle, making little harsh clicking noises deep in his throat.

A terminal case. Eyes blotched and dim, belly distended. The disease eats slowly through epithelial tissue, indiscriminately ulcerating any flesh in its path; the lucky ones are those whose vital organs are pierced quickly, but only a few are lucky. Eighteen years have passed since the Virus War launched the organ-rot upon mankind; Shadrach has read that many who were infected in the first onslaught are still waiting for the end to come. This man looks like one of those eighteen-year cases, but he can't have long to wait now. Every interior mechanism must be seared and corroded; he must be nothing but a mass of holes held together by frail ropes of living fabric, and the next erosion, wherever it strikes, will surely be fatal.

He seems to want Shadrach's attention, but he is unable to come to a halt in the proper place. Like a robot with rusty contacts he keeps overshooting, going by Shadrach in jerky convulsive motions, stopping, clashing internal gears, pivoting with a wild flapping of slack dangling arms, coming back for another try. At last on one desperate pass he succeeds in clapping his hand around Shadrach's forearm and anchors himself that way, standing close by him, leaning on him, rocking gently in place.

Shadrach does not pull away. If he can do no more for this maimed creature than give him support, he will at least do that.

In a terrible apocalyptic caw of a voice, a sort of whispered shriek, the old man says something to him that appears to be of high importance.

"I'm sorry," Shadrach murmurs. "I can't understand you."

The old man leans closer, straining to reach his face up to Shadrach's, and repeats his words with even greater urgency.

"But I don't speak Swahili," Shadrach says sadly. "Is that Swahili? I don't understand."

The old man searches for a word, wrinkled lips moving, throat bobbing, face taut with concentration. There is a sweet, dry odor about him, the odor of faded lilies. A lesion in one cheek seems nearly to go completely through the flesh from inside to out; probably he could thrust the tip of his tongue through it.

"Dead," the old man says finally, in English, delivering the word like a monstrous weight that he drops at Shadrach's feet.

"Dead?"

"Dead. You—make—me—dead—"

The words fall one after another from the ravaged throat without expression, without inflection, without emphasis. *You. Make. Me. Dead.* Is he accusing me of having given him the disease, Shadrach wonders, or is he asking for euthanasia?

"Dead! You! Make! Me! Dead!"

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Then more Swahili. Then some strained rheumy coughs. Then tears, amazingly copious, flooding in deep channels down the dusty cheeks. The hand that grips Shadrach's forearm tightens with sudden incredible strength, crushing bone against bone and wringing a sharp yelp of pain from him. Then the unexpected pressure is withdrawn; the old man stands free for a moment, tottering; from him comes a hoarse clucking noise, an unmistakable death rattle, and life leaves him so instantly and completely that Shadrach has a quasi-hallucinatory vision of a skull and bones within the old man's tattered clothes. As the body falls Shadrach catches it and eases it to the pavement. It weighs no more than forty kilos, he guesses.

What now? Notify the authorities? Which authorities? Shadrach looks about for a Citpol, but the street, busy a few minutes ago, is mysteriously empty. He feels responsible for the body. He can't simply abandon it where it dropped. He enters the curio shop to find a telephone.

The proprietor is a sleek, plump Indian, sixty years old or so, with large liquid eyes and thick dark silver-flecked hair. He wears an old-fashioned business suit and looks dapper and prosperous. Evidently he has witnessed the little curbside drama, for he bustles forward now, palms pressed together, lips clamped in a fussy oh-dear expression.

"How regrettable!" he declares. "That you should be troubled in this way! They have no decency, they have no sense of . . . of—"

"It was no trouble," Shadrach says quietly. "The man was dying. He didn't have time to think about decency."

"Even so. To importune a stranger, a visitor to our—"

Shadrach shakes his head. "It's all right. Whatever he wanted from me, I couldn't provide it, and now he's dead. I wish I could have helped. I'm a doctor," he confides, hoping the disclosure will have the right effect.

It does. "Ah!" the shopkeeper cries. "Then you understand these things." The sensibilities of doctors are not like those of ordinary beings. It no longer embarrasses the proprietor that one of his shabby countrymen has had the poor taste to inflict his death on a tourist.

"What shall we do about the body?" Shadrach asks.

"The Citpols will come. Word gets around."

"I thought we might telephone someone."

A shrug. "The Citpols will come. There is no importance. The disease is not contagious, I understand. That is, we are all infected from the days of the War, but we have nothing to fear from those who display actual symptoms. Or from their bodies. Is this not true?" the shopkeeper asks.

"It's true, yes," Shadrach says. He glances uncomfortably at the small sprawled corpse, lying like a discarded blanket on the sidewalk outside the store. "Perhaps we ought to phone anyway, though."

"The Citpols will come shortly,"

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the shopkeeper says again, as if dismissing the subject. "Will you have tea with me? I rarely have the opportunity to entertain a visitor. I am Bhishma Das. You are American?"

"I was born there, yes. I live abroad now."

"Ah."

Das busies himself behind the counter, where he has a hotplate and some packets of tea. His indifference to the body on the street continues to distress Shadrach; but Das does not seem to be an unintelligent or insensitive man. Perhaps it is the custom, out here in the Trauma Ward, to pay as little attention as possible to these reminders of the universal mortality.

In any event Das is right: the Citpols do indeed arrive swiftly, three black-skinned men in the standard uniforms, riding a long somber hearse-like vehicle. Two of them load the body into the car; the third peers through the shop window, staring long and intently at Shadrach and nodding to himself in an unfathomable, oddly disturbing way. The Citpols finally drive away.

Das says, "We will all die of the organ-rot sooner or later, is this not true? We and our children as well? We are all infected, they say. Is this not true?"

"True, yes," Shadrach replies. Even he carries the killer DNA enmeshed in his genes. Even Genghis Mao. "Of course, there's the antidote—"

"The antidote. Ah. Do you believe there is indeed an antidote?"

Shadrach blinks. "You doubt it?"

"I have no certain knowledge of these things. The Chairman says there is an antidote, and that it will soon be given to the people. But the people continue to die. Ah, the tea is ready! Is there, then, an antidote? I have no idea. I am not sure what to believe."

"There is an antidote," says Shadrach, accepting a delicate porcelain cup from the merchant. "Yes, truly there is. And one day it will be given to all the people."

"You know this to be fact?"

"I know it, yes."

"You are a doctor. You would know."

"Yes."

"Ah," Bhishma Das says, and sips his tea. After a long pause he says, "Of course, many of us will die of the rot before the antidote is given. Not only those who lived in the days of the War, but even our children. How can this be? I have never understood this. My health is excellent, my sons are strong—and yet we carry the plague within us too? It sleeps within us, waiting its moment? It sleeps within everyone?"

"Everyone," Shadrach says. How can he explain? If he talks of the structural similarities between the organ-rot virus and the normal human genetic material, if he describes how the virus liberated during the long-ago war was capable of integrating itself into the nucleic acid, into the germ plasm itself, becoming so intimately entwined with the human genetic machinery that it is passed from generation to generation with nor-

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mal cellular genes, a deadly packet of DNA that can turn lethal at any time, how much of this will Bhishma Das comprehend? Can Shadrach speak of the inextricability of the lethal genetic material, the inexorable way it must be incorporated into the genetic endowment of any child conceived since the Virus War, and get the meaning across? The intrusive organ-rot gene has become as intimate a part of the human heritage as the gene that puts hair on the scalp or the one that puts calcium in the bones: our tissues now are automatically programmed at birth to deteriorate and slough off when some unknown inner signal is given. But to Bhishma Das this may be as baffling as the dreams of Brahma. Shadrach says at last, after a moment's pause, "Everyone who was alive when they turned the virus loose absorbed it into his body, into the part of his body that determines what he transmits to his children. It can't be eradicated once it enters that part. And so we pass the virus along to our sons and daughters the way we do the color of our skins, the color of our eyes, the texture of our hair—"

"A dreadful legacy. How sad. And the antidote, doctor? Would the antidote free us from this legacy?"

"The antidote they have now," Shadrach says, "keeps the virus from having a harmful effect on the body. It neutralizes it, stabilizes it, holds it in a state of latency. You follow me?"

"Yes, yes, I understand. In the deep freeze!"

"So to speak. Those who receive the antidote have to take a new dose every six months, at present. To hold the virus in check, to keep the organ-rot from breaking out in them."

"More tea, doctor?"

"Please."

"You have received this antidote yourself?"

Shadrach replies uneasily, after a moment's consideration, "Yes. I have."

"Ah. Because you are a doctor. Because we must keep the healers alive. I understand. It seemed to me you must have the antidote. There is something about you; you are like a man apart from us. You do not wake up every day wondering if this is the day when the rot will start in you. Ah. And some day we will have the antidote too."

"Yes. Some day. The government is working on increasing the supply." The lie sours his mouth. "I wish you could have your first injection today."

"It is not important for me," Das says calmly. "I am old and I have enjoyed good health, and my life has been a happy one even in the most troubled times. If the rot begins in me tomorrow, I will be ready for it. But my sons, and the sons of my sons, I would spare them. What do old wars mean to them? Why should they die horrible deaths for the sake of nations that were forgotten before they were born? I want them to live. My family has been in Kenya for 150 years, since we first came from Bombay, and we have been happy here, and why should we perish

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now? Sad, doctor, sad. This curse on mankind. Will we ever cleanse ourselves of what we have done to ourselves?"

Shadrach shrugs. There is no way to comb the murderous new gene out of the genetic package; but in theory a permanent antidote is possible, a hybrid DNA that can be integrated into the contaminated genes to absorb or detoxify the lethal genetic material. Somewhere in the PRC organization they are at work on such an antidote, Shadrach has been told. Of course, the rumor may be false. The research group may be only a myth. The permanent antidote itself may be only a myth.

He says, "I think these last twenty years have been a purge that mankind necessarily had to undergo. A punishment for accumulated idiocies and foolishnesses, perhaps. The whole history of the twentieth century is like an arrow pointing straight to the Virus War and its aftermath. But I believe we'll survive the ordeal."

"And things will be again as they once were?"

Shadrach smiles. "I hope not. If we go back to where we were, we'll only arrive again eventually at the same place we've reached now. And we may not survive the next version of the Virus War. No, I think we'll build a better world out of the ruins, a quieter, less greedy world. It'll take time. I'm not sure how we're going to accomplish it. Many bad things will happen first. Millions will die needless horrible deaths. But eventually—eventually—the suffering will be over, the dying will be done, and those who remain will live in happiness again."

"How refreshing to hear such optimism."

"Am I an optimist? I've never thought of myself that way. A realist, maybe. But not an optimist. How strange suddenly to find myself an apostle of faith and good cheer!"

"Your eyes were glowing when you said what you said. You were already living in that better world as you spoke. Do you want to withdraw your prophecy? Please, no. You believe that that happier world will come."

"I hope it'll come," Shadrach says soberly.

"You know it will."

"I'm not sure. Perhaps I sounded sure a moment ago, but—" He shakes his head. He makes a determined effort to recapture that unexpected strain of positive thinking that had come so surprisingly from him a moment ago. "Yes," he says. "Things *will* get better." Already there is something forced about it, but he goes on. "No trend continues downward forever. The organrot can be defeated. The smaller population that exists now will be able to live comfortably in a world that couldn't support the numbers of people who lived before the war. Yes. A purge, an ordeal by fire, a necessary corrective to old abuses, leading to better things. Dawn after the long darkness."

"Ah. You *are* an optimist, doctor!"

"Perhaps I am. Sometimes."

"I would like to see a man like you as the leader of that new

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world," Bhishma Das exclaims rapturously.

Shadrach recoils. "No, not me. Let me live in that world, yes. But don't ask me to govern it."

"You will change your mind when the moment comes. They will offer you the government, doctor, because you are wise and good, and you will accept. Because you are wise and good." Das pours more tea. His naive faith is touching. Shadrach takes a sip; then he has a sudden morbid vision of Bhishma Das, a year or two from now, crying out in surprise and delight as the new Chairman of the Permanent Revolutionary Committee appears for the first time on his television screen, and the face of the new Chairman is the finely wrought brown-skinned face of that wise and good American doctor who once visited his store. Shadrach coughs and sputters and nearly spills his cup. The face will be the face of Dr. Mordecai, yes, but the mind behind the warm searching eyes will be the cold dark mind of Genghis Mao. Shadrach has almost managed to forget Project Avatar, this day in Nairobi. Almost.

"I should be going," Shadrach says. "It's late in the day. You'll want to close the shop."

"Stay a while. There is no hurry." Then: "I invite you to my home for dinner this evening."

"I'm afraid I can't—"

"Another engagement? Oh, how regrettable. We would provide a fine curry in your honor. We would open a fine wine. Some close friends—the most stimulating members of the Hindu community, professional people, teachers, philosophers—intelligent conversation—ah, yes, yes, a delightful evening, if you would grace our home!"

A temptation. Shadrach will dine alone, otherwise, at his hotel, a stranger in this strange city, lonely and in peril. But no: impossible. One of those stimulating Hindu professional persons will surely ask him where he lives, what kind of doctoring he does, and either he must lie, which is repugnant to him, or he must let it all spill out—member of privileged dictatorial elite, physician to the terrifying Genghis Mao, etc., etc., and so much for his new reputation as a humanitarian benefactor: the truth about him will sicken the friends of Bhishma Das and humiliate poor Das himself. Shadrach mumbles sincere-sounding excuses and regrets. As he edges to the door, Das follows him, saying, "At least accept a gift from me, a remembrance of this charming hour." The merchant glances hastily about his shelves, searching among the spears, the beaded necklaces, the wooden statuettes, everything apparently too crude, too flimsy, too inexpensive, or too awkwardly large to make a fitting offering for such a distinguished guest, and it seems for an instant that Shadrach will get out of the place ungifted; but at the last moment Das snatches up a small antelope horn in which a hole has been drilled at the pointed end and plugged with wax. A cupping horn, Das explains, used by a tribe near the southern border to draw pain and evil spirits

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from the bodies of the sick: one applies the cup to the skin, sucks, creates a vacuum, seals it with the wax plug. He urges it on Shadrach, saying it is an appropriate gift for a healer, and Shadrach, after a conventional show of reluctance, accepts gladly. He has no East African medical devices in his collection. "They still use these," Das informs him. "They use them very much just now, to draw forth the organ-rot spirit." He bows Shadrach from the store, telling him again and again what an honor his visit has been, what pleasure has come from hearing the doctor's words of hope.

On the seven-block journey back to the hotel Shadrach counts four dead bodies in the streets, and one that is not quite dead, but will be soon.

In the morning he flies onward, toward Jerusalem. He is aware of the curve of the planet below him, the enormous belly of the world, and he is amazed anew by its complexity, its richness, this globe that holds Athens and Samarkand, Lhasa and Rangoon, Timbuktu, Benares, Chartres, Ghent, all the fascinating works of vanishing mankind, and all the natural wonders, the Grand Canyon, the Amazon, the Himalayas, the Sahara—so much, so much, for one small cosmic lump, such variety, such magnificent multitudinousness. And it is all his, for whatever time remains before Genghis Mao calls upon him to yield up the world and go.

He is not, like Bhishma Das, ready to go whenever his marching orders arrive. The world, now that he is again out in the midst of it, seems very beautiful, and he has seen so little of it. There are mountains to climb, rivers to cross, wines to taste. He who has been spared from organ-rot does not want to succumb to another man's lust for immortality. Shadrach's passivity has fallen from him: he does not accept the fate in store for him. Bhishma Das called him an optimist, a wise and good man whose face glows when he speaks of the better days that are coming, and though that was not how Shadrach had ever seen himself, he is pleased that Das saw him that way, pleased that those unexpectedly hopeful words tumbled from his lips. It is agreeable to be thought of as a man of sunny spirit, to be a source of hope and faith. He tries the image on and likes the fit. It is a little like smiling when one is not in a smiling mood, and feeling the smile work its way inward from the facial muscles to the soul: why *not* smile, why *not* live in the hope of a glorious resurrection? It costs nothing. It makes others happier. If one is proven wrong, as no doubt one will be, one has at least had the reward of having dwelled for a time in a warm little sphere of inner light rather than in dark despair.

But it is hard to put much conviction into one's optimism when the threat of immediate doom hangs over one. I must deal somehow with the problem of Project Avatar, Shadrach resolves.

December 8, 2001. So I am not

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to suffer the organ-rot after all. Today I had my first dose of Roncevic's drug. They say that if your smears have shown no trace of the virus in its active state before your first injection, you are safe, but the antidote can do nothing for you if the thing has already entered into the lethal phase. My smears were clean: I am safe. I never doubted that I could be spared. I was not meant to perish in the Virus War, but rather to endure, to survive the general holocaust and enter into my own true time. Which now has come. "You will live a hundred years," Roncevic said to me this morning. Does he mean a hundred *more* years? Or a hundred all told? In which case I have only about twenty-five years left. Not enough, not enough.

No matter what, I'll outlive poor Roncevic. He has the rot already. It glistens and blazes in his belly. How hard he worked to develop his drug, how eager he was to save himself! But not in time. The disease went active in him too soon, and he will go. He goes, I stay: he plays his appointed role in the drama and leaves the stage. While I live on, perhaps another hundred years. My physical vitality has always been extraordinary. No doubt my bodily energies are of a superior order, for here I am, past seventy, with the vigor of a young man. Resisting disease, deflecting fatigue. They say that Chairman Mao, when he was past seventy, swam eight miles in the Yangtze in an hour and five minutes. Swimming is of no interest to me; yet I know that if there were need, I could swim *ten* miles in those sixty-five minutes. I could swim twenty.

Jerusalem is colder than Shadrach expects—almost as chilly as Ulan Bator on this late spring morning—and smaller, too, amazingly compact for a place where so much history has been made. He settles in at the International, a sprawling old mid-twentieth-century hotel stunningly located high on the Mount of Olives. From his balcony he has a superb view of the old walled city. Awe and excitement rise in him as he looks out upon it. Those two great glittering domes down there—his map tells him the huge gold one is the Dome of the Rock, or the site of Solomon's Temple, and the silver one is the Aqsa Mosque—and that formidable battlemented wall, and the ancient stone towers, and the tangle of winding streets, all speak to him of human endurance, of the slow steady tides of history, the arrivals and departures of monarchs and empires. The city of Abraham and Isaac, of David and Solomon, the city Nebuchadnezzar destroyed and Nehemiah rebuilt, the city of the Maccabees, of Herod, the city where Jesus suffered and died and rose from the dead, the city where Mohammed, in a vision, ascended into heaven, the city of the Crusaders, the city of legend, of fantasy, of pilgrimages, of con-

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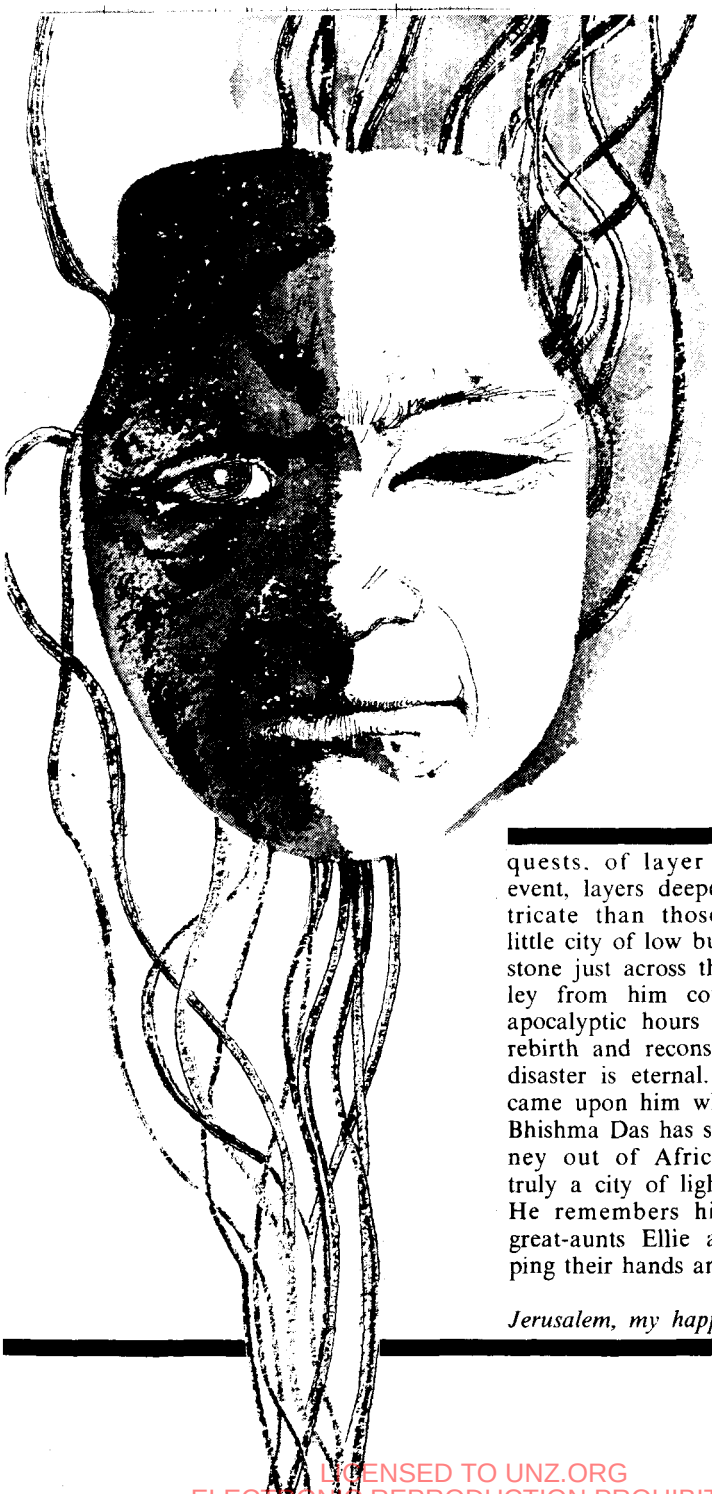

quests, of layer upon layer of event, layers deeper and more intricate than those of Troy—that little city of low buildings of tawny stone just across the swooping valley from him counsels him that apocalyptic hours are followed by rebirth and reconstruction, that no disaster is eternal. The mood that came upon him when he was with Bhishma Das has survived the journey out of Africa. Jerusalem is truly a city of light, a city of joy. He remembers his hymn-singing great-aunts Ellie and Hattie clapping their hands and chanting—

Jerusalem, my happy home • When

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shall I come to thee? • When shall my sorrows have an end? • Thy joys when shall I see?

—and suddenly he is again a boy of six or seven, wearing tight blue trousers and a starched white shirt, standing between those two colossal black women in their Sunday finery, singing with them, clapping his hands, humming or making up words where he does not know the right ones, oh, yes, Jerusalem, Jerusalem, lead me unto Jerusalem, Lord! That promised land, long ago, far away, that city of prophets and kings, Jerusalem the golden, with milk and honey blest, and here he is at its gates, trembling with anticipation. He calls for a cab.

But when he actually enters the city, passing through St. Stephen's Gate and stepping forth onto the Via Dolorosa, that romance and fantasy begins unexpectedly to evaporate, and he wonders how he could have babbled so blithely to Das of the good times a-coming. Jerusalem is undeniably picturesque, yes—but to call a place picturesque is to damn it—with its narrow steep streets and sturdy age-old masonry, its crowded stalls piled high with pots and pans, fish and apples, pastries and flayed lambs, its scents of strange spices, its hawk-faced old men in Bedouin regalia, but a cold wind whistles through the filthy alleyways and everyone he sees, children and beggars and merchants and shoppers and porters and workmen alike, has that same look of dull despair, that same hollow-eyed broken-souled expression, that is the mark not of endurance but of anticipated defeat and surrender: *The Assyrians are coming, the Romans are coming, The Persians are coming, the Saracens are coming, the Turks are coming, the organ-rot is coming, and we will be crushed, we will be everlastingly annihilated.*

It is impossible to escape the twenty-first century even within these medieval walls. Climbing toward Golgotha, Shadrach sees the standard mourning-poster of Mangu pasted up all over, the bland young face against the brilliant yellow background. Mangu's presence was not absent from Nairobi, naturally, but in that spacious and airy city the posters were less oppressive, easily obscured by the dazzle of the bougainvilleas and the jacarandas. Here the heavy stone walls sweat garish images of Mangu over passageways barely wide enough for three to go abreast, yellow blotches impossible to escape, and, seeing them, one feels the malign hand of Genghis Mao passing over the city, imposing on it an unfelt grief for the dead viceroy. Genghis Mao is more immediately present, too, the familiar sinister leathery features glowering from breeze-bellied banners at every major intersection. The natives take these alien images as casually as, no doubt, they once took the posters and banners of Nebuchadnezzar, Ptolemy, Titus, Chosroes, Saladin, Suleiman the Magnificent, and all the other transient intruders, but to Shadrach these reduplicated Mongol faces toll against his consciousness like

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so many leaden bells counting out his dwindling hours.

Then too the organ-rot is here. Not as conspicuously as in Nairobi, perhaps, for on the broad avenues of that city the terminal cases walked alone, stumbling and lurching through private zones of vacant space. Old Jerusalem is too congested for that. But there is no scarcity of victims, shivering and sweating and groping along the Via Dolorosa. Occasionally one halts, sags against a wall, digs his fingers between the stones for support. The Stations of the Cross are indicated by marble plaques set into walls: here Jesus received the cross, here He fell the first time, here he encountered His Mother, and so on. And here, up the Via Dolorosa, go the dying, lost in their own crucifixions. As in Nairobi, they stare without seeming to see. But a few stretch their hands toward him as if imploring his blessing. This is a town where miracles have not been uncommon, and the black stranger is a man of dignity and stature: who knows, perhaps a new Savior walks these streets? But Shadrach has no miracles to offer, none. He is helpless. He is as much a dead man as they are, though he still walks about. As they do.

He feels much too conspicuous, too tall, too black, too alien, too healthy. Beggars, mostly children, cluster about him like flies. *"Dol-lar,"* they implore. *"Dol-lar, dol-lar, dol-lar!"* He carries no coins—he uses a government credit planchet to cover all expenses—and so there is no way he can get rid of them. He scoops one five-year-old into the air, hoping to make a piggyback ride serve in lieu of baksheesh, but the expression of terror in the child's huge eyes is so pitiful that Shadrach quickly puts him down, and kneels, trying to give comfort. The child's fright passes at once: *"Dol-lar,"* he demands. Shadrach shrugs and the child spits at him and runs. There are too many children here, too many everywhere, unattended, running in packs through the cities of the world. They are orphans, running wild, a feral generation. Shadrach has seen Donna Labile's demographic surveys: the worst impact of the organ-rot has fallen upon those who would now be between the ages of twenty-five and forty, Shadrach's own contemporaries, those who were children during the Virus War. Slower to succumb than their parents were, they survived into adulthood—just long enough, most of them, to marry and bring forth young; then they died, having seeded the world with little savages. The PRC has begun to establish camps for these abandoned children, but they are not much more attractive than prisons, and the system is not working well.

It is too much for Shadrach—the fierce children, the woeful staggerers, the dirt, the unfamiliar density of the populace that throngs this tiny walled city. There is no way to escape the overwhelming sadness of the place. He should never have entered it; it would have been better by far to look out from his hotel balcony and think romantic thoughts of Solomon and Saladin. He is pushed, prodded,

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pawed, and elbowed; harsh-sounding things are said to him in languages he does not understand; he is beleaguered by offers to buy his clothing, to sell him jewelry, to take him on tours of the great religious sites. Without the help of guides he makes his way to the Church of the Holy Sepulchre, a grimy and graceless building, but he does not go in, for some kind of pitched battle seems to be under way at its main entrance between priests of different sects, who shout and shake fists and tug one another's beards and shred one another's cassocks. Turning aside, he finds, just back of the Church, a busy bazaar—more accurately a flea market—where sherds and tatters of the former era are for sale: broken radios, antique television tubes, outboard engines, a miscellany of gears and wheels and cameras and electric shavers and telephones and pumps and gyroscopes and vacuum cleaners and batteries and lasers and gauges and tape recorders and calculators and microscopes and phonographs and washing machines and prisms and amplifiers, all the debris of the affluent twentieth century washed up on this strange shore. Everything is seemingly broken or defective, but the traders are doing a brisk business anyway. Shadrach is unable even to guess what uses these remnants and fragments may now be finding in the Palestinian hinterlands. He actually spies something he wants for his own medical collection, a gleaming little ultramicrotome once used to prepare tissue sections for the electron microscope, but when he produces his credit planchet rather than haggle the trader merely gives him a blank, sullen stare. The PRC has decreed that government planchets must be accepted as legal tender everywhere, but the old Arab, after examining the glossy strip of plastic without much interest, hands it silently back to Shadrach and turns away. There is a Citpol at the edge of the marketplace who appears to be watching the aborted transaction. Shadrach could call the policeman over and get him to make the trader honor the planchet, but he decides against it; perhaps there will be unforeseeable complications, even dangers, and he does not want to attract attention in this place. He abandons the microtome and walks off to the south, through quieter streets, a residential district.

In a few minutes he comes to steps that lead downward to a great opened space, a cobblestoned plaza, at the far end of which stands an immense wall made of titanic blocks of rough-hewn stone. Shadrach ambles across the plaza, heading toward the wall as he studies his map and tries to get his bearings. He remembers turning left, then left again at the Street of the Chain—perhaps he is in the old Jewish Quarter, heading back toward the Dome of the Rock and the Aqsa, in which case—

"You should cover your head in this place," says a quiet voice at his right elbow. "You stand on holy ground."

A small compact man, seventy years old or more, tanned and vigorous-looking, has approached him.

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He wears a round black skullcap, and, with a courteous but insistent gesture, has produced another from his pocket which he extends toward Shadrach.

"Isn't this whole city holy ground?" Shadrach asks, taking the skullcap.

"Every inch is holy to someone, yes. The Arabs have their places, the Copts, the Greek Orthodox, the Armenians, the Syrian Christians, everyone. But this is ours. Don't you know the Wall?" There is no mistaking the capital letter in his voice.

"The Wall," Shadrach says, embarrassed, staring at the great stone blocks, then at his map. "Oh. Of course. You mean this is the Wailing Wall? I didn't realize—"

"The Western Wall, we called it, after the reconquest in 1967, when the wailing stopped for a time. Now it is the Wailing Wall again. Though I myself do not believe much in wailing, even in times such as these." The little man smiles. "Under whatever name, it is for us Jews a holy of holies. The last remnant of the Temple." Again the capital letter.

"Solomon's Temple?"

"No, not that one. The Babylonians destroyed the First Temple, 2700 years ago. This is the wall of the Second Temple, Herod's Temple, leveled by the Romans under Titus. The Wall is all that the Romans left standing. We revere it because it is for us a symbol not only of persecution but of endurance, of survival. This is your first time in Jerusalem?"

"Yes."

"Are you an American?"

"Yes," Shadrach says.

"I am also. So to speak. My father brought me here when I was seven. To a kibbutz in the Galilee. Just after the proclamation of the State of Israel, you know? 1948. I fought in the Sinai in '67, the Six Day War, and I was here to pray at the Wall in the first days after the victory, and I have lived in Jerusalem ever since. And the Wall to me is still the center of the world. I come here every day. Even though there is no longer really a State of Israel. Even though there are no longer any states at all, any dreams, any—" He pauses. "Forgive me. I talk too much. Would you like to pray at the Wall?"

"But I'm not Jewish," Shadrach says.

"What does that matter? Come with me. You are a Christian?"

"Not particularly."

"No religion at all?"

"No official religion. But I would like to go to the Wall."

"Come, then." They stride across the plaza, the short old man and the tall young one. Shadrach's companion says suddenly, "I am Meshach Yakov."

"Meshach?"

"Yes. It is a name from the Bible, the Book of Daniel. He was one of the three Jews who defied Nebuchadnezzar when the king ordered them to—"

"I know," Shadrach cries. "I know!" He is laughing. Delight bubbles in him. It is a delicious moment. "You don't have to tell me the story. I'm Shadrach!"

"Pardon me?"

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"Shadrach. Shadrach Mordecai. It's my name."

"Your name," says Meshach Yakov. He laughs too. "Shadrach. Shadrach Mordecai. It is a beautiful name. It could be a fine Israeli name. With a name like that you aren't Jewish?"

"The wrong genes, I think. But I suppose that if I converted I wouldn't need to bother changing my name."

"No. No. A beautiful Jewish name. Shalom, Shadrach!"

"Shalom, Meshach!"

They laugh together. It is almost a vaudeville routine, Shadrach thinks. That Citpol lurking over there—is he Abednego? They are right by the Wall, now, and the laugher goes from them. The enormous weatherbeaten blocks seem incredibly ancient, as old as the Pyramids, as old as the Ark. Meshach Yakov closes his eyes, leans forward, touches his forehead to the Wall as though greeting it. Then he looks at Shadrach. "How shall I pray?" Shadrach asks.

"How? How? Pray any way you want to pray! Speak with the Lord! Tell Him things. Ask Him things. Do I need to tell a grown man how to pray? What can I tell you? Only this: it is better to give thanks than to ask favors. If you can. If you can."

Shadrach nods. He turns toward the Wall. His mind is empty. His soul is empty. He glances at Meshach Yakov. The Israeli, eyes closed, is rocking gently back and forth, murmuring to himself in what Shadrach assumes is Hebrew. No prayers come to Shadrach's lips. He can think only of the wild children, the organ-rot, the blank despondent faces along the Via Dolorosa, the posters of Mangu and Genghis Mao. This journey of his has been a failure. He has learned nothing, he has achieved nothing. He might as well get himself back to Ulan Bator tomorrow and face what must be faced. But the moment he articulates those thoughts, he rejects them. What of that sudden upwelling of optimism as he sipped tea with Bhishma Das? What of the moment of delight, of warm fellow-feeling, that he experienced on first hearing Meshach Yakov's name? These two old men, the Hindu, the Jew, both so sturdy of soul, so patient and steady under the weight of the world catastrophe—has nothing of their strength rubbed off on him?

He stands a long while, listening to the silence within his body that is the absence of Genghis Mao's outputs, and decides that it is not yet time to return to Ulan Bator. He will go onward. He will complete his tour.

He says, under his breath, too self-conscious to let Meshach Yakov hear it, "Thank you, Lord, for having made this world and for having let me live in it as long as I have." *Better to give thanks than to ask favors.* Even so, asking favors is not forbidden. To himself Shadrach adds, "And let me stay in it a while longer, Lord. And show me how I can help make it more like the place you meant it to be." The prayer sounds foolish to him, mawkish, ingenuous. And yet not contemptible. And yet not contempt-

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ible. If it were given to him to live this one moment over, he would not revise that prayer, although he would not like to admit to anyone, either, that he had uttered it.

When they are done at the Wall, Meshach Yakov invites Shadrach to dinner; and Shadrach, who has come to regret having refused Bhishma Das' invitation, accepts. Yakov lives in the modern sector of Jerusalem, far to the west of the old city, out beyond the parliament buildings and the university campus, in a high-rise atop a bare lofty hill. The apartment house, one of a complex of twenty or so, has the glossy, glassy look favored in the late twentieth century, but the marks of decay are all over it. Windows are dusty, even broken, doors are out of true, the balconies are splotched with rust, the elevator creaks and groans. The place is more than half empty, Yakov tells him. As the population dwindles and services deteriorate, people have deserted these once-choice suburbs to live closer to the center of town. But he has been here forty years, he says proudly, and he intends to stay another forty, at the very least.

Yakov's apartment itself is small, well kept, furnished sparsely in a tasteful, old-fashioned way. "My sister Rebekah," he says. "My grandchildren, Joseph, Leah." He tells them Shadrach's name, and they all have a hearty laugh over the coincidence, the close Biblical association. The sister is in her seventies, Joseph about eighteen, Leah twelve or thirteen. There are black-framed photographs on the wall—Yakov's wife, Shadrach assumes, and three grown children, probably all victims of the organ-rot. Yakov does not say, Shadrach does not ask.

"Are you Jewish?" Leah demands.

Shadrach smiles, shakes his head.

"There *are* black Jews," she says. "I know. There are even Chinese Jews."

"Genghis Mao is a Jew," Joseph says, and bursts into wild laughter. But he laughs alone. Meshach Yakov glares at him; Yakov's sister looks shocked, Leah embarrassed. Shadrach finds himself shaken by the sudden intrusion of that alien name into this serene self-contained household.

Stiffly Yakov says to the boy, "Don't talk nonsense."

"I didn't mean anything," Joseph protests.

"Then save your breath," Yakov snaps. To Shadrach he says, "We are not great admirers of the Chairman here. But I would not like to discuss such things. I apologize for the boy's silliness."

"It's all right," Shadrach says.

Leah says, "Why do you have a Jewish name?"

"My people often took first names from the Bible," Shadrach tells her. "My father's father was a minister, a religious scholar. He suggested it. I have an uncle named Absalom. Had. And cousins named Solomon and Saul."

"But the last name," the girl persists. "That's what I mean. It's Jewish too. There once was a great rabbi named Mordecai, in Ger-

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many, long ago. We heard about him in school. Do black people pick their own last names too?"

"They were given to us, by our owners. My family must once have been owned by someone named Mordecai."

"Owned?"

"When they were slaves," Joseph whispers harshly.

"You were slaves too?" the girl says. "I didn't know. We were slaves in Egypt, you know. Thousands of years ago."

Shadrach smiles. "We were slaves in America. More recently."

"And your owner was a Jew? I *don't believe a Jew would own* slaves, not ever!"

Shadrach wants to explain that the slavemaster Mordecai, if ever he existed and gave his name to his blacks, was not necessarily Jewish, but might have been, for even Jews were not beyond owning slaves in the days of the plantation; but the discussion is making Meshach Yakov uncomfortable, apparently, and with such abruptness that the children are left gaping he changes the subject, asking his sister whether dinner will be ready soon.

"Fifteen minutes," she says, heading for the kitchen.

As though heeding an unspoken warning to leave the guest in peace, Joseph and Leah withdraw to a couch and begin a stilted, awkward conversation about events in school—a worldwide holiday has been proclaimed, it seems, for the day of Mangu's funeral, and Joseph, who is at the university, will be deprived of a field trip to the Dead Sea, which annoys him. Leah cites some remark made by Jerusalem's PRC chief about the importance of paying respect to the fallen viceroy, bringing a derisive hoot from Rebekah in the kitchen and a brusque comment about the official's intelligence and sanity, and soon things degenerate into a noisy, incomprehensible discussion of local political matters, involving all four Yakovs in a fierce bilingual shouting match. Meshach, at the outset, attempts to explain to Shadrach something about the cast of characters and the background but as the dispute goes along he becomes too embroiled in it to keep up his running commentary. Shadrach, baffled but amused, watches these articulate and spirited people wrangle until the arrival of dinner brings a sudden halt to the debate. He has no idea what the battle was about—it has to do with the replacement of a Christian Arab by a Moslem on the city council, he thinks—but it cheers him to see such a display of energy and commitment. In Ulan Bator, bugged and spy-eyed to an ultimate degree, he has never witnessed such furious clashes of opinion; but perhaps the spy-eyes have nothing to do with it, perhaps it is only because he has lived outside the framework of the nuclear family for so long that he has forgotten what real conversation is like.

The advent of dinner is worrisome—should he don the skullcap again, what other customs are there that he does not know?—but no problems arise. Neither Meshach nor his grandson wears a skullcap; there is no prayer before eating,

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only a moment of silent grace observed by the two old people; the food is rich and plentiful, and Shadrach does not notice any special dietary customs in force at the Yakov table. Afterward Joseph and Leah retire to their rooms to study, and Shadrach, warmed by red Israeli wine and strong Israeli brandy, settles down with old Yakov to study maps of the vicinity, for they have agreed at dinner to go on a sightseeing tour in the morning. The old city, certainly, its towers and churches and marketplaces, and the supposed tomb of Absalom in the Kidron Valley nearby, and the tomb of King David on Mount Zion, and the archaeological museum, and the national museum where the Dead Sea scrolls are kept, and—

"Wait," Shadrach says. "All this in one day?"

"We'll take two, then," Meshach says.

"Even so. Can we really cover so much ground so fast?"

"Why not? You look healthy enough. I think you can keep up with me." And the old man laughs.

In Istanbul a few days later he has no guide, and he wanders that intricate city of many levels alone, confused, defeated by the complexities of getting from one place to another, wishing that some Meshach Yakov would discover him here, some Bhishma Das. But none does. The map he gets at his hotel is useless, for there are few street-signs, and whenever he veers off a main boulevard he immediately gets lost in a maze of anonymous alleyways. There are taxis, but the drivers seem to speak only Turkish, tourism having perished during the Virus War; they can follow self-evident instructions—"Haghia Sophia"—"Topkapi"—but when he wants to go to the ancient Byzantine rampart on the outskirts of the city he is unable to make any driver understand, and in the end he has to resort to asking to be taken to the Kariya Mosque on the city's outskirts, and getting from there to the nearby wall on foot, by guesswork.

Istanbul is gritty, grimy, archaic, alien, and irritating. Shadrach is fascinated by its architectural mix, the opulent Ottoman palaces and the glorious many-minareted mosques and the eighteenth-century wooden houses and the sweeping twentieth-century avenues and the battered fragments of old Constantinople that jut like broken teeth from the earth, bits of aqueducts and cisterns and basilicas and stadiums. But the city is too chaotic for him. It depresses and repels him despite the powerful appeal of its rich-textured history. Even now more than a million people live here, and Shadrach finds it hard to cope with such a density of humanity. There are the usual dismaying organ-rot tragedies on display in the streets, and an extraordinary number of feral children, some only three or four years old, trooping like desperate scavengers everywhere. And there are Citpols moving in wary pairs wherever he turns. Watching him, he is convinced. Is it just paranoia? He doesn't think so. He thinks that

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Genghis Mao, unhappy over having given his physician leave to roam the world, is keeping him under surveillance so that he can be brought back to Ulan Bator at the Khan's whim. Shadrach had not expected to be able to vanish totally—indeed, returning to Ulan Bator is definitely central to his emerging plan of action, though he still does not know when the right moment to go back will arrive—but he does not like the idea of being spied upon. After two days in Istanbul, a perfunctory tour of the standard sights, he flies abruptly to Rome.

He spends a week there, making his headquarters in an ancient hotel, mellow and luxurious, a few blocks from the Baths of Diocletian. Rome too is densely populated, and its urban pace is frenetic, but for some reason there are fewer scars of the Virus War and its nightmare aftermath here, and Shadrach begins to relax, to ease himself into a comfortable Mediterranean rhythm of life: he strolls the splendid streets, he sips aperitifs at sidewalk cafes, he gorges himself on pasta and young white wine at obscure trattorias, and all the traumas of the Trauma Ward become insignificant. Truly this is the Eternal City, capable of absorbing all of time's heaviest blows and never losing its resilience. He sees, of course, the imperial monuments, the Arch of Titus that commemorates the Roman sacking of Jerusalem, the temples and palaces of the Capitoline and Palatine, the magnificent jumble that is the Forum, the haunted wreck of the Colosseum. He visits St. Peter's, and, looking up toward the Vatican, muses on Genghis Mao's mocking, corrosive offer to make him Pope. He does the Sistine Chapel, the Etruscan collection in the Villa Giulia, the Borghese gallery, and a dozen of the best baroque churches. His energies seem to grow rather than flag as he pursues the infinite antiquities of Rome. Oddly, he finds himself responding most intensely not to the celebrated classic monuments but to the ancient gray tenements, steep and gaunt, in Trastevere and the Jewish Quarter. Are these the very tenements of Caesar's time, mansions once, slums now? Is it possible that they are still inhabited after two thousand years? Why not? The old Romans knew how to build six stories high, and even higher, and built of durable stone. And it would not have been hard, despite the sackings and the fires and the revolutions, to keep those buildings intact, to rebuild, replaster, patch the old and make it new, constantly to refurbish and restore. So these gray towers may once have housed the subjects of Tiberius and Caligula, and Shadrach gets a pleasant little shiver from the thought that they have been continuously occupied across the ages. On second thought, it probably is not so; nothing, he decides, endures that long in daily use. These are more likely twelfth-century buildings, fourteenth, even seventeenth. Old enough but not truly ancient. Except in the sense that anything that antedates the rise of Genghis Mao, that has survived out of that

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former world, that prediluvian epoch, is ancient.

He wishes he could stay in Rome forever. A pity, he thinks, that Genghis Mao wasn't serious about the papacy. But after a week Shadrach resolves to go onward. It is too pleasant here, too comfortable; besides, as he downs a Strega at his favorite cafe one warm humid evening, he notices two Citpols at a table at a cafe on the opposite corner, not drinking, not talking, merely watching him. Are they closing in, tightening their net? Will they pick him up tomorrow or the day after and tell him he must return to his master in Ulan Bator? He buys a ticket to London, cancels it at the last moment, and boards a plane that is about to leap over the pole to California.

And suddenly he is in San Francisco. A toy city, white and precious, rising on formidable hills and girdled by a sparkling bay. He has never been here before. Odd how he expects famous cities to be gigantic: this one, like Jerusalem, is surprisingly small. Drop it down in Rome, in Nairobi, in crazy sprawling Istanbul, and it would vanish altogether. Surprisingly cold, too. California to him has always been a place of swimming pools and palm trees, of football games played in bright warm sunshine on wondrous January afternoons, but that California of the mind must be somewhere else, probably down by Los Angeles; San Francisco in June has a sullen late-winter feel, with sharp insistent winds and gray, clinging fogs. Even when the fog burns away in the afternoon and the city glitters in brilliant light under an intense cloudless sky, the air still carries the chill of the ocean breezes, and Shadrach huddles into his inadequate summer jacket.

There are no ancient palaces to see here, no gazelles and ostriches running wild, no medieval ramparts or baroque churches. But there are elegant streets of Victorian houses, from grand mansions down to wooden bungalows, all of them delicately ornamented with scrollwork and cornices and friezes and gables and spires and even some stained-glass windows, most of the buildings in fine preservation, survivors of fire, earthquake, insurrection, biochemical warfare, and the collapse of the United States of America itself. There are trees and shrubs everywhere, many in bloom; this city, chilly or not, is nearly as flowery as Nairobi, and he looks with delight on trees that are great blazing masses of red blossoms, on giant tree ferns and contorted wind-sculpted cypresses, on hillsides dark with fragrant groves of eucalyptus. One long day he walks clear across the city from the bay to the ocean, emerging out of a lush dreamlike park to stand at the edge of the Pacific, staring toward Mongolia. Somewhere thousands of kilometers to the northwest Genghis Mao is awakening and beginning his morning exercises. Shadrach wonders about the current kidney functions of Genghis Mao, his pulse rate, his calcium-phosphate levels, his endocrine balances, all the myriad twitching bits of information he was so accus-

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tomed to receiving. He realizes that he has begun to miss the broadcasts from Genghis Mao's body. He misses the daily challenge of sustaining the Chairman's indomitable but increasingly vulnerable inner mechanisms. He may even miss Genghis Mao himself. Ah, strange, dark, mysterious! Ah, the Hippocratic compulsions!

How goes it with the Khan? The Khan still lives and thrives, judging by the newspaper Shadrach buys—the first he has bothered to look at in all the weeks of his journey—which is strewn with photographs of Mangu's funeral, held last week with Pharaonic pomp and majesty. There is Genghis Mao himself, in full mourning regalia, riding in the vast procession. There he is again, benevolently blessing the millions crammed into Sukhe Bator Square. (*Millions?* Well, so it says. Thousands, more likely.) And again, and again, the Khan doing this, the Khan doing that, the Khan orchestrating all the remaining energies of this bedraggled planet in a global outpouring of grief. Ulan Bator, Shadrach discovers, is to be renamed Altan Mangu, "Golden Mangu." This seems comically excessive to Shadrach, but he supposes he will get used to the new name in time; the old one, which means "Red Hero," has been obsolete anyway since the fall of the People's Republic in 1995, and Genghis Mao has been thinking for years of changing it to something more appropriate. Well, Altan Mangu will do well enough, Shadrach decides. A noise in place of a noise.

Pages and pages of coverage of the funereal rites! Not even a President of the United States would have received such a spread. And the funeral was *last* week; have they been running batches of photos like this every day since then? Probably. Probably. The funeral is the big story of the month, bigger even than the news of Mangu's death, which happened too quickly, which lacked the linear extension in time that makes for really big news. What other news is there, anyway? That people are dying of organ-rot? That the Committee is nobly endeavoring to insure a major increase in the supplies of the Antidote, real soon now? That the Chairman's personal physician is loose on an aimless jaunt around the world while, in some corner of his woolly skull, he plots ways to thwart the Chairman's scheme to take possession of his body? Funeral pictures are much more interesting than any of that.

So much fuss, in an American newspaper, about a funeral in Mongolia. Shadrach finds himself thinking about the final President of the United States—someone named Williams, he thinks, or maybe Richards, at any rate a first name turned into a last name—and what sort of funeral *he* had. Seven mourners and a muddy grave on a rainy day, most likely. (Roberts? Edwards? The name has slipped through his memory, beyond recapture.) There still were Presidents of the United States when Shadrach was a boy, even a living ex-President or two. He tries to remember

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who the President was when he was born. A man named Ford, wasn't it? Yes, Ford. Most people liked Ford, Shadrach remembers. Before him there was one named Nixon, whom people did not like, and one named Kennedy, who was shot, and Truman, Eisenhower, Johnson, Roosevelt—resonant names, sturdy American-sounding names. Our leaders, our great men. What is the name of our leader now? Genghis II Mao IV Khan. Who would believe that, in the old United States before the Virus War? Would George Washington have believed it? Would Lincoln? The final year before the PRC took over there were seven presidents, some of them simultaneously. It used to be that the country needed thirty or forty years to run through seven presidents, but there were seven all in one year, in 1995. There used to be emperors in Rome, too, and Augustus or Hadrian would probably have been surprised at the quality and racial origin of some of them toward the end of the imperial era, the ones who were Goths and the ones who were boys and the ones who were madmen and the ones who ruled six days before their own palace guards strangled them in disgust. Well, Lincoln would have been surprised to find Americans accepting someone named Genghis II Mao IV Khan as their leader. Or maybe not. Lincoln might have believed that people get the governments they deserve, and that we must have deserved Genghis Mao. Lincoln might even have liked the gaudy old monster.

San Francisco is a fine city for walking. The scale of the place is modest and human, so that one can move from one neighborhood to another, from the mansions of Pacific Heights to the sunny fantasy-Mediterranean of the Marina, from Russian Hill to the Wharf, from the Mission to the Haight, in a single short brisk jaunt, with a constantly changing and always agreeable urban texture all the way. Neither wind nor fog nor steepness of hill is a serious handicap in such an amiable environment. And the city is alive. There are shops, restaurants, coffeehouses; the waterfront districts offer half a dozen big carpentry chapels of competing sects, a dream-death house, a den of transtemporalists; the people in the streets give the illusion of good health and high spirits, and though Shadrach knows it must be only an illusion, it is a persuasive one. The only thing wrong with San Francisco is the profusion of Citpols.

There are more policemen here than he has ever seen in any one place, more even than in Ulan Bator itself. It is as though every ninth San Franciscan has enrolled in the Citizens' Peace Brigade. Maybe it is only a delusion of his troubled mind, or maybe the unusual vitality of this city requires a correspondingly unusual quota of policing: at any rate, there are gray-and-blue uniforms everywhere, *everywhere,* usually in pairs but not infrequently in clumps of three, four, five. Most of them have that mechanical insectoid look that seems to be characteristic of their kind, that makes Shadrach suspect

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that Citpols are not born and trained but rather are stamped out in some ghastly factory deep in the Caucasus. And they all are watching him. Watching, watching, watching—it *can't* be mere paranoia. Can it? Those dull gray watchful eyes, hard, stupid, purposeful, studying him from all angles as he strides through the city? Why are they looking at him so intently? What do they want to know?

They are going to arrest me soon, Shadrach tells himself.

He is certain that he has been under surveillance since his departure. He is positive that Avogadro is receiving information on his movements and is filing daily reports with Genghis Mao; and—is it his own growing tension that makes it seem that way, or is the tension in Genghis Mao?—the intensity of the surveillance appears to have been increasing, from Nairobi to Jerusalem, from Jerusalem to Istanbul, from Istanbul to Rome, first a casual Citpol or two glancing offhandedly at him, then more overt scrutiny, then teams of them following him about, hovering, staring, conferring, charting his movements, until, perhaps in San Francisco, perhaps not until he reaches Peking, they get the orders from the capital and make their move, dozens of them on the housetops, in doorways, on street-corners: *All right, Mordecai, come quietly and you won't get hurt—*

And then, when he is at Broadway and Grant, about to turn downhill into teeming Chinatown and speculating darkly about the three Citpols clustered outside an Oriental grocery store across the street, someone shouts at him from the far side of Broadway, "Mordecai? Hey, Shadrach Mordecai!"

At the sound of his name Shadrach freezes, impaled in mid-fantasy, knowing that the game is up, that the moment he has feared is at hand.

But the man approaching him, moving in awkward dragging lurches through the traffic, is no Citpol. He is a burly, balding man with a seamed weary face and a thick unkempt gray-streaked beard, who is clad in threadbare green overalls, a heavy plaid shirt, a faded red cloak. When he reaches Shadrach's side he puts his hand on Shadrach's forearm in a way that seems to be asking for support as much as for attention, and thrusts his face close to Shadrach's, assuming intimacy so brazenly that Shadrach does not resist the encroachment. The man's eyes are watery and swollen: one of the organ-rot symptomata. But he is still capable of smiling. "Doctor," he says. His voice is warm, furry, insinuating. "Hey, doctor, how's it going?"

A drunk. Probably not dangerous, though there is a vague sense of menace about him.

"I didn't know I was such a celebrity here."

"Celebrity. Celebrity. Yeah, you're famous. At least to me you are. I spotted you from all the way across Broadway. Not that you've changed so much." The man is definitely drunk. He has that heavy, overly ingratiating warmth; he is

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practically hanging from Shadrach's arm. "You don't recognize me, do you?"

"Should I?"

"Depends. You knew me pretty well once."

Shadrach searches the jowly, ravaged face. Distantly familiar, but no name comes to mind. "Harvard," he guesses. "It must have been Harvard. Right?"

"Two points. Keep going."

"Medical school?"

"Try the college."

"That's harder. That goes back better than fifteen years."

"Take fifteen years off me. And about twenty kilos. And the beard. Shit, you haven't changed at all. Of course you live an easy life. I know what you've been doing." The man shuffles his feet and, without relinquishing his grip on Shadrach's arm, twists away, coughs, hawks, spits. Bloody sputum. He grins. "Piece of my gut there, eh? Lose a little more every day. You really don't recognize me. What the hell, all us white boys look alike."

"Want to give me more hints?"

"Big one. We were on the track team together."

"Shotput," Shadrach says instantly, feeling the datum rise out of God knows what recess of his memory banks and certain that it is correct.

"Two points. Now the name."

"Not yet. I'm groping for it." He transforms this ruin into a young man, beardless, brawn where he has fat today, in T-shirt and shorts, hefting the gleaming metal globe, going into the bizarre little wind-up dance of the shotputter, making his heave—

"The NCAA meet, Boston, '95. Our sophomore year. You won the 60-meter sprint in six seconds even. Very nice. And I took the shotput at 21 meters. Our picture in all the newspapers. Remember? The first big track event after the Virus War, a sign that things were getting back to normal. Hah. Normal. You were one hell of a runner, Shadrach. I bet you still are. Shit, I couldn't even *lift* the shot now. What's my name?"

"Ehrenreich," Shadrach says immediately. "Jim Ehrenreich."

"Six points! And you're the big man's doctor now. You said you'd be of some use to humanity, you weren't going into medicine just to make a buck, eh? And you were right on. Serving humanity, keeping our glorious leader alive. Why do you look so surprised? You think nobody knows the name of the Chairman's doctor?"

"I don't try to get much publicity," Shadrach says.

"True. But we know a little about what goes on in Ulan Bator. I was Committee, you know. Until last year. Where are you heading? Chinatown? Let's walk together. Standing still like this, it's bad for my legs, the varicose veins. I was Committee, third from the top in Northern California, even had a vector-access rating. Of course they dropped me. But don't worry: you won't get into trouble talking to me. Even with those Citpols standing over there watching. I'm not a pariah, you know. I'm just ex-Committee. I'm allowed to talk to people."

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A Calendar of Upcoming Events

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October 1-3, 1976:
BoucherCon (Anthony Boucher Memorial Mystery Convention) at the Americana Hotel, Culver City, CA. Registration $4 in advance. Info: P.O. Box 4456, Downey, CA 90241.

October 15, 1976:
Deadline for entries in the New England Science Fiction Association's Third Annual SF Short Story Contest. Open to all non-professionals. Info: N.E.S.F.A., Box G, MIT Branch Post Office, Cambridge, MA 02139.

October 15-17, 1976:
WindyCon III (Chicago area SF Conference) at the Sheraton Hotel, Chicago, Ill. Guest of Honor—A.J. Budrys; Fan Guest of Honor—Bev Swanson. Info: P.O. Box 2572, Chicago, IL 60690.

October 22-24, 1976:
AnonyCon 2 (Western New York State SF Conference) at the Airport Holiday Inn, Buffalo, N.Y. Guest of Honor—Samuel R. Delany. Registration $5 to 15 Sept., $8 thereafter. Buffet $6.50. Info: Karen Klinck, 142 Snughaven Road, Tonawanda, NY 14150.

October 29-31, 1976:
Alpha DraConis (combined SF, Star Trek, Film, etc conference) at Holiday Inn, Toronto. Registration $7 until 30 Sept., $10 thereafter. Info: Draco Films Society, 1384 Ludbrook Court, Mississaugua, Ontario L5J 3P4, Canada.

October 29-31, 1976:
2nd World Fantasy Convention in New York, N.Y. Info: Thom Anderson, 1643 West 10th Street, Brooklyn, NY 11223.

September 1-6, 1977:
SunCon (35th World Science Fiction Convention) in Miami Beach, FLA. Guest of Honor—Jack Williamson; Fan Guest of Honor—Bob Madle. Panels, talks, masquerade, films, art show. Presentation of the Science Fiction Achievement Awards (Hugos) and the John W. Campbell Award for Best New Writer. Registration $7.50 attending; $5 supporting (subject to change) Info: Box 3427, Cherry Hill, NJ 08002.

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"What happened?"

"I was dumb. I had this friend, she was Committee too, very low echelon, and her brother caught the rot. She said to me, Can you jigger the computer, get a bigger requisition of the Antidote, save my brother? Sure, I said, I would, I'll do it, only for you, kid. I knew this computer man. He could jigger the numbers. So I asked him, and he did it, at least I thought he was doing it, but it was only a trap, a sucker deal, pure entrapment—the Citpols stepped in, asked me to account for the extra Antidote allotment I had requested—" Ehrenreich blinks cheerfully. "They sent her to the organ farm. Her brother died. Me they simply dropped, no further punishment. Very lucky. On account of my years of devoted service to the Permanent Revolution. I even get a little allowance, enough to keep me in vodka. But it was a waste, Shadrach, a stupid waste. They should have sent me to the organ farm too, while I was still whole. Because now I'm dying. You know that, don't you?"

"Yes."

"They say that if you've been on the Antidote, and you go off it, you generally get the rot right away. It's like the pent-up force of the disease busts loose and conquers you."

"I've heard that, yes," Shadrach says.

"How long do I have? You can tell that, can't you?"

"Not without examining you. Maybe not even then. I'm not exactly an expert on the rot."

"No. No, you wouldn't be. Not in Ulan Bator. You don't get enough exposure there. I've had it six months. My beard was black when I got it. I had all my hair then. I'm going to die, Shadrach."

"We're all going to die. Except maybe for Genghis Mao."

"You know what I mean. I'm not even 37 years old and I'm going to *die*. I'm going to rot and die. Because I was dumb, because I wanted to help the brother of a friend. I had it made, I was home safe, the Antidote in my arm every six months—"

"You really were dumb," Shadrach tells him. "Because nothing you could have done would have helped your friend's brother."

"Eh?"

"The Antidote doesn't cure. It immunizes. Once the lethal stage sets in, that's it. The disease can't be reversed. Didn't you know that? I thought everybody knew that."

"No. No."

"You smashed your career for nothing. Threw away your life for nothing."

"No," Ehrenreich says. He looks stunned. "It can't be true. I don't believe it."

"Look it up."

"No," he says. "I want you to save me, Shadrach. I want you to prescribe the Antidote for me."

"I just told you—"

"You knew what I was going to ask. You were trying to head me off."

"Please, Jim—"

"But you could get the stuff. You're probably traveling with a hundred ampoules in your little black bag. Man, you're Genghis Mao's own doctor! You can do

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anything. It's not like being third from the top in a regional office. Look, we were on the same team, we won trophies together, we had our pictures in the paper—"

"It wouldn't work, Jim."

"You're afraid to help me."

"I ought to be, after what you just told me. You got dropped for illegal diversion of the Antidote, you say, and then you turn around and ask me to do the same thing."

"It's different. You're the doctor of—"

"Even so. There's no point in giving you the Antidote, for reasons that I've just explained. But even if there were, I couldn't get any for you. I'd never get away with it."

"You don't want to take a risk. Even for an old friend."

"No, I don't. And I don't want to be made to feel guilty for refusing to do something that doesn't make any sense." There is nothing gentle in Shadrach's voice. "The Antidote is useless to you now. Absolutely entirely useless. Get that straight and keep it straight."

"You wouldn't even try some on me? Just for an experiment?"

"It's useless. Useless."

After a long pause Ehrenreich says, "You know what I wish, old buddy? That you find yourself in bad trouble someday, that you find yourself right on the edge of the cliff and you're hanging on by your fingernails. And some old buddy of yours comes along, and you yell out to him, Save me, save me, they're killing me! And he tromps on your hand and keeps on walking. That's what I wish. So you'd find out what it's like. That's what I wish."

Shadrach shrugs. He can feel no anger toward a dying man. Nor does he choose to talk about his own problems. He says simply, "If I could heal you, I would. But I can't."

"You won't even try."

"There's nothing I can do. Will you believe that?"

"I was sure you'd be the one. You if anybody. Didn't even remember me. Won't lift a finger."

Shadrach says, "Have you ever done any carpentry, Jim?"

"You mean, in the chapels? Never interested me."

"It might help you. It won't cure what you have, but it might make it easier for you to live with it. Carpentry shows you patterns that you can't necessarily see for yourself. It helps you sort what's real and important from what doesn't matter much."

"So you're a carpentry nut?"

"I go now and then. Whenever things cut too close. There are some chapels down by Fisherman's Wharf. I wouldn't mind going now. Suppose you come down there with me. It'll do you some good."

"There's a bar at Washington and Stockton that I go to a lot. Suppose we go there instead. Suppose you buy me some drinks on your PRC card. Do me even more good."

"Bar first, then chapel?"

"We'll see," Ehrenreich says.

The bar is dark, musty, a forlorn place. The bartender is an automatic: card in slot, thumb to identification plate, punch for drinks.

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They order martinis. Ehrenreich's truculence subsides after his second drink; he grows morose and maudlin, but he is less bitter now. "'I'm sorry I said what I did, man," he mutters.

"Forget it."

"I really thought you'd be the one."

"I wish I could be."

"I don't wish any trouble on you."

"I'm in trouble already," Shadrach says. "Hanging on by my fingernails." He laughs. A new round of drinks comes from the machine. He lifts his glass. "Never mind. Cheers, friend."

"Cheers, man."

"After this one we'll go to the chapel, right?"

Ehrenreich shakes his head. "Not me. It's not for me, you know? Not now. Not right now. You go without me. Don't nag me about it, just go without me."

"All right," Shadrach says.

He finishes his drink, touches Ehrenreich's arm lightly in farewell—the man is glassy-eyed, inarticulate—and finds a cab to take him down to the wharf. But the chapel gives Shadrach no ease today. His fingers tremble, his eyes will not focus, he is unable to slip into the meditative state. After half an hour he leaves. He sees a car full of Citpols in a lot up the block. They're still watching him. There is a bearded man in street clothes in the car, also. Ehrenreich? Is that possible? At this distance he can't make out faces, but the heavy shoulders look about right, the thinning hair is familiar. Shadrach scowls. He hails a taxi, goes back to his hotel, packs, heads for the airport. Three hours later he is on his way to Peking.

In Peking, ensconced at the Hundred Gates Hotel in the old legation quarter adjoining the Forbidden City districts, where Kublai Khan and Ch'ien-lung once held court, Shadrach begins once more to detect emanations from Genghis Mao. He is still some 1200 or 1300 kilometers from Ulan Bator, he calculates—beyond the optimum telemetering range, and so the incoming impulses are blurred and faint. Then, too, after these weeks of separation Shadrach is no longer as much in concord with the broadcast from Genghis Mao's body as he had been. But when he sits very still, when he tunes his attention perfectly to the task, he finds himself able to read the old warlord's biodata with gradually sharpening clarity.

The gross functions come in best, of course: heartbeat, blood pressure, respiration, body temperature. The Khan's major systems all seem to be thundering along at their usual level of irrepressible vitality. Liver and kidney action register in their normal range. Basal metabolic expenditure normal. Neuromuscular responses normal. It never ceases to amaze Shadrach how healthy, how strong, the old man is. He takes a certain vicarious pride in Genghis Mao's heroic durability and resilience.

Some unexpected puzzles begin to develop, though, as Shadrach ex-

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tends his reach and starts to bring in the subtler, more refined data. These tend to contradict some of the gross indications. The muscle-firing responses do not seem quite right—phosphate breakdown appears weak, enzyme activity off. Blood viscosity is lower than normal and blood pH is nudging slightly toward the alkaline. Intestinal absorption is minutely down, cholesterol accumulation up, perspiration a trifle above normal.

None of these things is cause for real alarm in a man of the Chairman's age who has recently undergone so much radical surgery—it is hardly reasonable to expect him to be in perfect health—but the combination of factors is peculiar. Shadrach wonders how much of what he is reading is simply an artifact of distance and noise on the line: he is straining for some of these inputs, and he may not be getting them accurately. Still, the distortions, if distortions they are, are remarkably consistent. He gets the same reading whenever he returns to any sensor.

And a hypothesis is starting to take shape.

Diagnosis at more than a thousand kilometers' range is tricky. Shadrach misses his medical library and his computers. But he has an idea of what the problem may be, and he knows what data he needs to confirm his theory. What he does not know is whether Buckmaster's implant system is good enough to transmit analogs of such small-scale phenomena across so great a distance.

If blood viscosity is down and blood pH is alkaline, plasma protein levels are probably subnormal, and osmotic pressure, which draws fluids from the tissues to the capillaries, is going to be low. If the hydrostatic blood pressure is normal, as the gross-function modulator is telling him, and the osmotic blood pressure is off, Genghis Mao's tissues may be building up an accumulation of excess fluids—not serious, not dangerous, not yet, but such fluid accumulations may be leading toward the development of edemas, of watery swellings, and edemas can be symptomatic of impending failure in the kidneys, the liver, perhaps the cardiac system. Bearing down in intense concentration, Shadrach roves Genghis Mao's body in search of signs of excess fluid. The lymphatic-system checkpoints give him nothing but normal levels, though. The reports from the pericardial, pleural, and peritoneal outposts are positive. Renal and hepatic functions, as before, are fine. Nothing seems to be wrong. Shadrach begins to abandon his hypothesis. Perhaps the Khan is not in difficulties. Those few negative indications were probably just noise on the line, and therefore—

But then Shadrach notices that something is not quite right in Genghis Mao's skull. Intracranial pressure is unusually high.

The implant monitors in the Chairman's cranium are not as comprehensive as they are elsewhere. Genghis Mao has no history of stroke or other cerebrovascular events, and surgeons have never had reason to invade the imperial skull. Since most of the tele-

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metering equipment in Genghis Mao has been installed during the course of routine corrective surgery, Shadrach must make do with relatively skimpy coverage of the state of the Chairman's brain. But he does have a sensor that reports to him on intracranial pressure, and, as he makes his total scan of Genghis Mao's body, the rise in that pressure catches his attention. Is that where the fluid buildup is taking place?

Struggling, stretching for the data, Shadrach pulls in whatever correlative information he can grab. Osmotic pressure of the cranial capillaries? Low. Hydrostatic pressure? Normal. Meningeal distension? High. Condition of the cerebral ventricles? Congested. Something is awry, very marginally awry, in the system that drains cerebrospinal fluid from the interior of Genghis Mao's brain to the subarachnoid space, next to the skull wall, where it normally passes into the blood.

What this means, at the moment, is that Genghis Mao probably has been having bad headaches for a few days, that he will have worse ones if Shadrach Mordecai does not return to Ulan Bator at once, and that he may suffer brain damage—possibly fatal—if prompt corrective action is not taken. It means, also, that Shadrach's holiday is at its end. He will not do the sightseeing tour of Peking. Not for him the visit to the Forbidden City, the historical museum, the Ming tombs, the Great Wall, the temple of Confucius, the Working People's Palace of Culture. Those things are unimportant to him now: this is the moment for which he was waiting during his wanderings from continent to continent. The unstable system that is Genghis II Mao IV Khan has, in the absence of the devoted physician, begun to break down. Shadrach's indispensability has been made manifest. He is needed. He must go to his patient immediately. He must take the appropriate actions. He has his Hippocratic obligations to fulfill.

He has his own survival to think about, besides.

Shadrach descends to the hotel lobby to arrange for a seat aboard the next flight to Ulan Bator—there is one that evening, he learns, leaving in two and a half hours—and to check out of the room he so recently checked into. The clerk, a gaunt young Chinese who is unable to contain his fascination with the color of Shadrach's skin, staring and staring with surreptitious sideways glances, comments on the brevity of his stay in Peking.

"Change of plan," Shadrach declares resonantly. "Urgent business. Must return at once."

He glances down the length of the lobby—a dim, fragrant space, like the vestibule of some enormous Chinese restaurant, cluttered with mahogany screens and porcelain urns and huge lacquer bowls on rosewood pedestals—and sees, towering above a pair of porters, the husky, hulking figure of Avogadro. Their eyes meet and Avogadro smiles, nods his head in salute, waves a hand. He has just

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arrived at the hotel, it seems. Shadrach is not at all surprised to discover the Security chief here. It was inevitable, he decides, that Avogadro would show up to make the arrest in person.

Neither of them remarks on the coincidence of their presence in this exotic place. Avogadro asks amiably, "How have you been enjoying your travels, doctor?"

"I've seen a great deal of the world. Most interesting."

"That's the best word you can choose? Interesting? Not overwhelming, illuminating, transcendental?"

"Interesting," Shadrach repeats deliberately. "A very interesting trip. And how is Genghis Mao bearing up in my absence?"

"Not too badly."

"He's well looked after. He likes to think I'm indispensable, but the relief staff is quite capable of handling most of what's likely to come up."

"Probably so."

"But he's been having headaches, hasn't he?"

Avogadro looks mildly startled. "You know that, do you?"

"I'm just at the edge of the telemetering range here."

"And you can detect his *headaches?*"

"I can pick up certain causal factors," Shadrach says, "and deduce a headache from them."

"How clever that system is. You and the Khan are practically one person, wouldn't that be so? Connected the way you are. He aches and you feel it."

"Well put," Shadrach says. "Actually, Nikki was the first one to make that point to me. Genghis Mao and I are one person, yes, one united information-processing unit. Comparable to the sculptor and the marble and the chisel."

The analogy does not appear to register with Avogadro. He continues to smile the fixed, determinedly affable smile that he has been smiling since they first approached one another in the lobby.

"But not united closely enough," Shadrach goes on. "The system could be linked even more tightly. I plan to talk to the engineers about building some modifications into it, when I get back to Ulan Bator."

"Which will be when?"

"Tonight," Shadrach tells him. "I'm booked on the next flight out."

Avogadro's eyebrows rise. "You are? How convenient. Saves me the trouble of—"

"Asking me to return?"

"Yes."

"I thought you might have had something like that in mind."

"The truth is that Genghis Mao misses you. He sent me down here to talk to you."

"Of course."

"To ask you to come back."

"He sent you to ask me that. Not to *bring* me, but to *ask* me. If I would return. Of my own free will."

"To ask, yes."

Shadrach thinks of the Citpols keeping tabs on him all around the world, huddling, conferring, passing bulletins on to their colleagues in distant cities. He knows, and he is

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sure that Avogadro knows that he knows, that the real situation is not as casual as Avogadro would have him believe. By buying that ticket on this evening's flight, he has spared Avogadro the embarrassment of having to take him into custody and return him to Ulan Bator under duress. He hopes Avogadro is properly grateful for that.

He says, "How bad are the Khan's headaches?"

"Pretty bad, I'm told."

"You haven't seen him?"

Avogadro shakes his head. "Only on the telephone. He looked drawn. Tired."

"How long ago was this?"

"The night before last. But there's been talk in the Tower all week about the Chairman's headaches."

"I see," Shadrach says. "I thought it might be like that. That's why I've decided to go back ahead of schedule." His eyes rest squarely on Avogadro's. "You understand that, don't you? That I bought my return ticket as soon as I realized the Khan was in discomfort. Because it was my responsibility to my patient. My responsibility to my patient is always the controlling factor in my actions. Always. Always. You're aware of that, aren't you?"

"Naturally," Avogadro says.

June 23, 2012. What if I had died before my work was done? Not an idle question at all. I am important to history. I am one of the great reconstituters of society. Subtract me from the scene in 1995, in 1998, even as late as 2001, and everything tumbles into chaos. I am to this society as Augustus was to the Roman world, as Ch'in Shih Huang Ti was to China. What kind of world would exist today if I had perished ten years ago? A thousand warring principalities, no doubt, each with its own pathetic army, its own legislature, currency, passports, border guards, customs levies. A host of petty aristocracies, feudal overlords, secret cabals of malcontents, constant little revolutions—chaos, chaos, chaos. New outbreaks of virus warfare, very likely. And ultimately the extinction of mankind. All this if you subtract Genghis Mao at the critical moment in history. I am the world-savior.

It sounds obscenely boastful. *World-savior!* Culture-hero, myth-figure, I, Krishna, I, Quetzalcoatl, I, Arthur, I, Genghis Mao. And yet it is true, truer for me than for any of them, for without me all of mankind might be dead today, and that is new in the history of the savior-myth. To end the strife, to seal away the virus, to sponsor Roncevic's work—yes, no doubt of it, this could have been a dead planet by now if I had gone into the tomb ten years ago. As history will recognize. And yet, and yet, what does it matter? I will not be forgotten when I die—I will never be forgotten—but *I will die*. Sooner, later, my subterfuges will exhaust themselves. Neither Talos nor Phoenix nor Avatar can sustain me indefinitely. Something will fail, or boredom will conquer me and I will terminate my own systems, and I will

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die, and then what will it have meant to have saved the world? What I have done is ultimately meaningless to me. The power I have attained is ultimately empty. Not immediately empty—here I sit, do I not, among splendor and comfort?—but *ultimately* empty. I pretend that there is meaning in empire, but there is none, no meaning anywhere. This is a philosophy common among the very young, and, I suppose, among the very old. I must pretend that power is important to me. I must pretend that the reckoning of history is the all-consoling consolation. But I am too old to care. I have forgotten why it mattered to me to do what I have done. I am playing out a foolish game, unwilling to let it reach its end, but unsure of the nature of the winning gambit. And so I go on and on and on. I, Ghenghis II Mao IV Khan, savior of the world, taking care to conceal from those around me the profound and paralyzing vacancy that lies beneath the subcellars of my spirit. I think I have lost the thread of my own argument. I am tired. I am bored. My head hurts.

My head hurts.

"Shadrach!" Genghis Mao roars. "This filthy headache! Fix me, Shadrach!"

The old buccaneer forces a grin. He sits propped up against triple pillows, looking weary and frayed. His jaws are set in a rigid grimace; his eyes have a harsh glare and they waver frantically as though he is struggling to keep them in focus. At this close range Shadrach can easily detect a dozen different symptoms of the pressure building up in the recesses of the Chairman's brain. Already there are many tiny signs of deterioration in Genghis Mao's cerebral functions. No doubt of the diagnosis now. No doubt of it.

"You were away too long," the Khan mutters. "Enjoying yourself? Yes. But the headache, Shadrach, the miserable hideous headache—I shouldn't have let you go. Your place is here. Beside me. Watching me. Healing me. It was like sending my right hand on a voyage around the world. You won't go away again, will you, Shadrach? And you'll fix my head? It frightens me. The throbbing. Like something trying to escape in there."

"There's no reason to worry, sir. We'll fix you soon enough."

Genghis Mao rolls his eyes in torment. "How? Chop a hole in my skull? Let the demon escape like a whiff of foul gas?"

"This isn't the Neolithic," Shadrach says. "The trephine is obsolete. We have better methods." He touches the tips of his fingers to the Khan's cheeks, probing for the sharp, upthrusting bones. "Relax, sir. Let the muscles go slack." It is late at night, and Shadrach is exhausted, having flown this day from San Francisco to Peking, from Peking to Ulan Bator, having gone at once to Genghis Mao's bedside without pausing even for fresh clothing. His mind is a muddle of time-zones and he is not sure whether he is in Saturday, Sunday, or Friday. But there is a

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sphere of utter crystalline clarity at the core of his spirit. "Relax," he croons. "Relax. Let the tension flow out of your neck, out of your shoulders, out of your back. Easy, now, easy—"

Genghis Mao scoffs. "You aren't going to cure this with massages and soothing talk."

"But we can ease the symptoms this way. We can palliate, sir."

"And then?"

"If necessary, there are surgical remedies."

"You see? You *will* chop open my skull!"

"We'll be neat about it, I promise." Shadrach moves around behind Genghis Mao, so he will not be distracted by the need to maintain eye-contact with the fierce old man, and concentrates on diagnostic perceptions. Hydrostatic imbalances, yes; meningeal congestion, yes; some accumulation of metabolic wastes about the brain, yes. The situation is far from critical—action could be deferred for weeks, perhaps for many months, without great risk—but Shadrach intends to deal swiftly with the problem. And not only for Genghis Mao's sake.

Genghis Mao says, "It's good to have you back."

"Thank you, sir."

"You should have been here for the funeral. You would have had a front-row seat. It was magnificent, Shadrach. Did you watch the funeral on television?"

"Of course," Shadrach lies. "In—ah—in Jerusalem. I think I was in Jerusalem then. Yes. Magnificent. Yes."

"Magnificent," says Genghis Mao, dwelling lovingly on the word. "It will never be forgotten. One of history's great spectacles. I was proud of it. The Assyrians couldn't have done better for old Sardanapalus." The Khan laughs. "If one can't attend one's own funeral, Shadrach, one can at least satisfy the urge by staging a splendid funeral for someone else. Eh? Eh?"

"I wish I could have been there, sir."

"But you were in Jerusalem. Or was it Istanbul?"

"Jerusalem, I think, sir." He touches Genghis Mao's temples, pressing lightly but firmly. The Chairman winces. When Shadrach presses the sides of Genghis Mao's neck, just below and behind the ears, the Chairman grunts.

"Tender there," Genghis Mao says.

"Yes."

"How bad is it, really?"

"It's not good. No immediate danger, but there's definitely a problem in there."

"Explain it to me."

Shadrach moves out where Genghis Mao can see him. "The brain and spinal cord," he says, "float, literally float, in a liquid we call cerebrospinal fluid, which is manufactured in hollow chambers within the brain known as ventricles. It protects and nourishes the brain and, when it drains into the spaces surrounding the brain, it carries off the metabolic wastes resulting from the brain's activity. Under certain circumstances the passageways from the ventricles to these meningeal spaces become blocked, and cere-

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brospinal fluid accumulates in the ventricles."

"Is that what's happening to my head?"

"So it seems."

"Why?"

Shrugging, Shadrach replies, "It's usually caused by infection or by a tumor at the base of the brain. Occasionally it comes on spontaneously, without observable lesion. A function of aging, maybe."

"And what are the effects?"

"In children, the skull enlarges as the ventricles swell. That's the condition known as hydrocephalus, water on the brain. The adult cranium isn't capable of expansion, of course, so the brain must bear all the pressure. Severe headaches are the first symptom, naturally. Followed by failures of physical coordination, vertigo, facial paralysis, gradual loss of eyesight, periods of coma, general impairment of cerebral functions, epileptic seizures—"

"And death?"

"Death, yes. Eventually."

"How long from first to last?"

"It depends on the degree of the blockage, the vigor of the patient, and a lot of other factors. Some people live for years with mild or incipient hydrocephalic conditions and aren't even aware of it. Even acute cases can drag on for years, with long periods of remission. On the other hand, it's possible to go from first congestion to mortality in a matter of months, and sometimes much more quickly even than that, if something like medullary edema develops, an intracranial swelling that disrupts the autonomic systems."

These recitals of symptomatology and prognosis have always fascinated Genghis Mao, and intense interest is evident in his eyes now. But there is something else, a haunted look, a flashing look of dismay verging on terror, that Shadrach has never observed in him before.

The Chairman says, "And in my case?"

"We'll have to run a full series of tests, of course. But on the basis of what the implants are telling me, I'm inclined toward quick corrective surgery."

"I've never had brain surgery."

"I know that, sir."

"I don't like the whole idea. A kidney or a lung is trivial. I don't want Warhaftig's lasers inside my head. I don't want pieces of my mind cut away."

"There's no question of our doing that."

"What will you do, then?"

"It's strictly a decompressive therapy. We'll install valved tubes to shunt the excess fluid directly into the jugular system. The operation is relatively simple and much less risky than an organ transplant."

Genghis Mao smiles icily. "I'm accustomed to organ transplants, though. I think I *like* organ transplants. Brain surgery is something new for me."

Shadrach, as he prepares a sedative for the Chairman, says cheerfully, "Perhaps you'll come to like brain surgery as well, sir."

In the morning he seeks out Frank Ficifolia at the main com-

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munications nexus deep in the service core of the tower. "I heard you'd returned," Ficifolia says. "I heard it, but I didn't believe it. For Christ's sake, why'd you come back?"

Shadrach eyes the banks of screens and monitors warily. "Is it safe to talk here?"

"Jesus, do you think I'd bug my own office?"

"Someone might have done it without telling you about it."

"Talk," Ficifolia says. "It's safe here."

"If you say so."

"I say so. Why didn't you stay where you were?"

"The Citpols knew where I was, every minute. Avogadro himself dropped in on me in Peking."

"What did you expect? Taking commercial transport all around the world. There are ways of hiding, but—did Avogadro make you come back here, then?"

"I had already bought my ticket."

"Jesus, *why*?"

"I came back because I saw a way of saving myself."

"The way to save yourself is to go underground."

"No," Shadrach says emphatically. "The way to save myself is to return and continue to carry out my functions as the Chairman's doctor. You know that the Chairman is ill?"

"Bad headaches, they tell me."

"Dangerous headaches. We'll need to operate."

"Brain surgery?"

"That's right."

Ficifolia compresses his lips and studies Shadrach's face as though examining a map of El Dorado. "I once told you that you weren't crazy enough to survive in this city. Maybe I was wrong. Maybe you're plenty crazy. You *have* to be crazy if you think you can intentionally bungle an operation on Genghis Mao and get away with it. Don't you think Warhaftig will notice what you're doing and stop you? Or turn you in, if you actually do pull it off? What good is killing the Khan, if you end up in the organ farms yourself? How—"

"Doctors don't kill their patients, Frank."

"But—"

"You're jumping to conclusions. Projecting your own fantasies, perhaps. I'm simply going to operate. And cure the Chairman's headaches. And see to it that he stays in good health." Shadrach smiles. "Don't ask questions. Just help me."

"Help you how?"

"I want you to find Buckmaster for me. There's a special piece of equipment I'll need, and he's the right man to build it. Then I'll want you to help me rig the telemetering circuits to run it."

"Buckmaster? Why Buckmaster? There are plenty of capable microengineering people right here on the staff."

"Buckmaster's the one I want for this job. He's the best in his field, and he happens to be the one who built my implant system. He's the one who ought to build any additions to that system." Shadrach's gaze is uncompromising. "Will you get me Buckmaster?"

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Ficifolia, after a moment, blinks and brusquely nods. "I'll take you to him," he says. "When do you want to go?"

"Now."

"Right now? Right this literal minute?"

"Now," Shadrach says. "Is he very far from here?"

"Not really."

"Where is he?"

"Karakorum," Ficifolia replies. "We hid him among the transtemporalists."

Jan. 2, 2009. I insisted, and they allowed me to sample the transtemporal experience. Much talk of risks, of side effects, of my responsibilities to the commonwealth. I overruled them. It is not often that I have to *insist*. It is rare that I can speak of *being allowed*. But this was a struggle. Which of course I won, but it was work. Visited Karakorum after midnight, light snow falling. The tent was cleared. Guards posted. Teixeira had given me a full checkup first. Because of the drugs they use. Clean bill of health: I can handle their most potent potions. And so, into the tent. Dark place, foul smell. I remember that smell from my childhood—burning cowchips, uncured goathides. Little slump-backed lama comes forth, very unimpressed with me, no awe at all—why be awed by Genghis Mao, I guess, when you can gulp a drug and visit Caesar, the Buddha, Genghis Khan?—and mixes his brews for me. Oils, powders. Gives me the cup to drink. Sweet, gummy, not a good taste. Takes my hands, whispers things to me, and I am dizzy and then the tent becomes a cloud and is gone and I find myself in another tent, wide and low, white flags and brocaded hangings, and there he is before me, thick-bodied, short, a man of middle years or more, long dark mustache, small eyes, strong mouth, stink of sweat coming from him as if he hasn't bathed in years, and for the first time in my life I feel I want to sink to my knees before another human being, for this is surely Temujin, this is the Great Khan, this is he, the founder, the conqueror.

I do not kneel, except within myself. Within myself I fall at his feet. I offer him my hand. I bow my head.

"Father Genghis," I say. "Across nine hundred years I come to do you homage."

He regards me without great interest. After a moment he hands me a bowl. "Drink some airag, old man."

We share the bowl, I first, then the Great Khan. He is dressed simply, no scarlet robes, no ermine trim, no crown, just a warrior's leather costume. The top of his head is shaven and in back his hair reaches his shoulders. He could kill me with a slap of his left hand.

"What do you want?" he asks.

"To see you."

"You see me. What else?"

"To tell you that you will live forever."

"I will die like any man, old one."

"Your body will die, Father Gen-

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ghis. Your name will live in the ages."

He considers that. "And my empire? What of that? Will my sons rule after me?"

"Your sons will rule over half the world."

"Half the world," Genghis Khan says softly. "Only half? Is this the truth, old man?"

"Cathay will be theirs—"

"Cathay is already mine."

"Yes, but they will have it all, down to the hot jungles. And they will rule the high mountains, and the Russian land, and Turkestan, Afghanistan, Persia, everything as far as the gates of Europe. Half the world, Father Genghis!"

The Khan of Khans grunts.

"And I tell you this, also. Nine hundred years from now a khan named Genghis will rule everything from sea to sea, from shore to shore, all souls upon this world naming him master."

"A khan of my blood?"

"A true Tatar," I assure him.

Genghis Khan is silent a long while. It is impossible to read his eyes. He is shorter than I would have thought, and his smell is bad, but he is a man of such strength and purpose that I am humbled, for I thought I was of his kind, and in a way I am, and yet he is more than I could ever have been. There is no calculation about him; he is altogether solid, unhesitating, a man who lives in the moment, a man who must never have paused for a second thought and whose first thought must always have been right. He is only a barbarian prince, a mere wild horseman of the Gobi, to whom every aspect of my ordinary daily life would seem the most dazzling magic: yet put him down in Ulan Bator and he would understand the workings of Surveillance Vector One in three hours. A barbarian he is, yes, but not a *mere* barbarian, not a mere anything, and though I am his superior in some ways, though my life and my power are beyond his comprehension, I am second to him in all the ways that matter. He awes me. As I expected him to do. And, seeing him, I come close to a willingness to yield up all my authority over men, for, next to him, I am not worthy. I am not worthy.

"Nine hundred years," he says at last, and the shadow of a smile crosses his face. "Good. Good." He claps for a servant. "More airags," he calls. We share another drink. Then he says he must depart; it is time to ride out from Karakorum to the camp of his son Chagadai, where the royal family is to hold a tourney today. He does not invite me to join him. He has no interest in me, though I come from out of the realm of distant time, though I bring him bright tales of Mongol empires to come. I am unimportant to him. I have told him all he cares to know; now I am forgotten. Only the tourney matters now. He leaps to his mare; he rides away, followed by the warriors of his court, and only the servant and I remain.

Two robed acolytes bring Roger Buckmaster to Shadrach out of the depths of the tent of the trans-

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temporalists in Karakorum. Buckmaster is robed too, but not in the coarse black horsehair garb of a transtemporalist. He wears a heavy hooded cassock of thick brown wool, smoothly woven. His feet, bare, are clad in open sandals. A massive cruciform pendant dangles at his throat. He pushes back his hood to reveal a tonsured scalp.

Buckmaster has become some sort of monk.

His new asceticism of clothing is not the only change in him. Before, he had been a blurting, impatient, angry man, with some kind of sullen furious energy circulating within him that seemed dammed at every plausible point of exit. Now he is eerily calm, self-contained, a man inhabiting an unfathomable kingdom of solitude and peace. He is pale, very thin, almost spectral. He stands silently before Shadrach, fingering his beads but otherwise motionless, waiting, waiting.

Shadrach says at last. "I never expected to see you alive again, Roger."

"Life brings many surprises, Dr. Mordecai." Buckmaster's voice is different too, deeper, sepulchral, more resonant, all the sputter and frenzy burned out of it.

"Word went around that you'd been sent to the organ farm. Dissected, dismembered."

Piously Buckmaster says, "The Lord chose to spare me."

His piety is hard for Shadrach to take. "Your friends saved your skin, you mean," he retorts, instantly regretting his bluntness. Not a wise way to talk to someone whose services you need.

But Buckmaster does not seem offended.

"My friends are His agents. As are we all, Dr. Mordecai."

"Have you been here the whole time?"

"Yes. Since the day after you saw me under interrogation."

"And the Citpols haven't come sniffing around for you?"

"I am officially dead, doctor. My body has officially been distributed to ailing members of the government: the computer will tell you so. The Citpols don't search for dead men. To them I'm no more than a set of scattered parts—a pancreas here, a liver there, a kidney, a lung. Forgotten." For a moment mischief gleams in Buckmaster's oddly solemn face. "If you told them I was here, they would deny it."

"And what have you been doing?" Shadrach asks.

"The transtemporalists regard me as a holy man. I take their cup each day. Each day I retrace the days of the life of our Lord. I have attended His Passion upon Calvary many times, doctor. I have walked among the apostles. I have touched the hem of Mary's robe. I have beheld the miracles: Cana, Capernaum, Lazarus raised at Bethany. I have watched Him betrayed in Gethsemane. I have seen Him brought before Pilate. I have seen it all, Dr. Mordecai, everything of which the Gospels tell. It is all true. It is literally the truth. My eyes bear witness."

The unexpected intensity of conviction in Buckmaster's eyes, the unearthly sound of Buckmaster's

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voice, leave Shadrach speechless a moment. It is impossible not to believe that this scruffy little man has strolled through the Galilee with Jesus and Peter and James, that he has heard the sermons of John the Baptist and the lamentations of the Magdalene. Illusion, hallucination, self-deceit, fraud: no matter. Buckmaster has been transformed. He is radiant.

With deliberate bluntness Shadrach asks, "Can you still do microengineering work?"

The irrelevance of the question catches Buckmaster off balance. He is lost in holy reveries, shrouded in mystic serenity and transcendental joy, and Shadrach's words bring a gasp of amazement from him, as though he has been jabbed in the ribs. He coughs and frowns and says, obviously baffled, "I suppose I could. It's never entered my mind."

"I have work for you now."

"Don't be preposterous, doctor."

"I'm being altogether serious. I've come to you because there's a job that you and only you can do properly. You're the only one I'd trust to do it."

"The world has expelled me, doctor. I have expelled the world. Here is where I dwell. The concerns of the world are no longer my concerns."

"You once were concerned about the injustices perpetrated by Genghis Mao and the PRC."

"I am beyond justice and injustice now."

"Don't say that. It sounds impressive, Roger, but it's dangerous nonsense. The sin of pride, isn't it? You were rescued by your fellow men. You owe your life to them. They took risks for you. You have obligations to them."

"I pray for them daily."

"There's something more immediately useful you can do."

"Prayer is the highest good I know," Buckmaster says. "Certainly I place it higher than microengineering. I fail to see how any microengineering job you give me can help my fellow men."

"One job can."

"I fail to see—"

"Genghis Mao is soon to undergo another operation."

"What's Genghis Mao to me? He's forgotten me. I've forgotten him."

"An operation on his brain," Shadrach continues. "Fluid now accumulates within his skull. Unless it's drained, it could kill him. Shortly we'll install a drainage system with a valve through which the fluid can be removed. At the same time a new telemetering implant will be installed in me. Which I want you to design for me, Roger."

"What will it do?"

"Allow me to control the action of the valve," Shadrach says.

Two hours later Shadrach is in the great carpentry chapel at the far end of the Karakorum pleasure complex, surrounded by chisels and mallets and saws, trying to enter into the initial meditative state. He is not doing well at it. Now and then he feels just a bit of it, the beginnings of the proper degree of concentration, but he holds it no more than an instant and then, as he congratulates himself for having

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attained the state at last, he loses it, again and again he loses it. It is Buckmaster's fault. Buckmaster will not recede from the forefront of Shadrach's consciousness.

If Buckmaster had had his way, Shadrach would not be among the carpenters at all right now, but rather still would be in the transtemporalists' tent, lying drugged and limp while his soul journeyed back through the millennia to attend the bloody rite of Calvary. "Take the cup with me," Buckmaster had urged. "We will visit the Passion together." But Shadrach had declined. Some other time, he told Buckmaster gently. Transtemporal jaunts consume too much energy; he needs all his strength for the difficult enterprise that lies just ahead. Buckmaster had understood, or at least was willing to forgive him for not caring to make the journey just then. And Shadrach went forth from the tent, with Buckmaster's promise that he would have the design of the new implant ready in a day or so. And still Buckmaster haunts him.

How astonishing it was to see Buckmaster's monkishness fall away from him the moment he grasped the implications of Shadrach's request—his breath quickening, color coming to his cheeks, eyes bright with the old frenzy. Asking a hundred questions, demanding specifications and performance thresholds, size parameters, preferred bodily placement for the device. Scribbling notes furiously. Half an hour was all it took him to work out the rough schematics. He would need computer assistance to do the final, he said, but that would be no problem: Ficifolia could hook up a telephone relay for him, keying right into Genghis Mao's own master computer. And Buckmaster laughed stridently. Abruptly his expression shifted. Serenity returned. He had put microengineering aside; suddenly he was a monk again, calm, remote, glacial, saying, "Take the cup with me. We will visit the Passion together."

Poor crazy Buckmaster.

Shadrach, struggling to regain his own serenity, picks up an awl, lays it down, picks up an auger, runs his fingers along the curved blade of a chisel, presses a bastard file against his forehead. Better. A little better. The touch of cool metal soothes him. Poor crazy Buckmaster has drained the cup by now, no doubt. And has gone off on wings of dream to see them put the crown of thorns in place, hammer in the nails, ram home the spear. Crazy? Buckmaster is a happy man. He has placed himself beyond all pain. He has outsmarted the minions of Genghis Mao. He has emerged out of his torment into holiness, and he will walk daily with the apostles and the Savior. To Buckmaster, the Palestine of Jesus is more real than the Mongolia of Genghis Mao, and who can quarrel with that? Shadrach might make the same choice, if he could. Of course, reality will eventually intrude on Buckmaster's fan-

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tasy: a time will come, and come soon, when Buckmaster's most recent Antidote treatment will cease to be effective, and he is not likely to be able to obtain a booster dose. But plainly he does not worry about that.

Thinking of Buckmaster's newfound tranquility allows Shadrach to find a glimmering of it himself. This time he sustains it, voyaging inward to that clear bright place beyond the reach of storms. Buckmaster disappears; Genghis Mao disappears; Shadrach disappears. For hours he works peacefully at his bench, wholly at one with his tools, his lumber. When he departs from the chapel late in the day he is in a state near ecstasy.

He reaches Ulan Bator an hour after nightfall. As soon as he arrives he phones Katya Lindman.

"I want to see you," he says.

"I was hoping you'd call. I knew you were back."

They meet in a recreation lounge on the fiftieth floor, a rendezvous favored by middle-echelon staffers. Service is discreet there. The room is a dazzling high-vaulted oval, decorated with shining golden metallic streamers only a few molecules thick that dangle from the ceiling and twirl gently in the currents of air. A giant portrait of Genghis Mao occupies the entire east wall of the lounge, and there is one of Mangu at the other end.

Katya is wearing what is, for Katya, an unusually slinky costume, a clinging tight-woven wrap of some soft rust-colored fabric, low-cut to display her strong broad shoulders and her heavy breasts. She may even have used perfume. Shadrach has never seen her make the slightest concession to conventional femininity, and he is surprised and disappointed to see her opting for such unsubtle seductiveness now. It is not at all in character for her, and not at all necessary. But perhaps Katya is weary of staying in character, hard eyes, sharp teeth, cruel mouth, cool efficient mind, brisk and capable woman of science. She has already confessed her love for him; perhaps now she wants to play at being the sort of woman for whom love is a plausible event. Foolish of her, if that's her game: he much prefers the Katya he knows. Or thinks he knows. Love is not a costume-party.

She says, "I didn't think you'd ever come back."

"I never intended not to. I wasn't trying to disappear. Only to get away for a while and think things out."

"And did you succeed?"

"I hope so. I'll know soon enough."

"I won't ask."

"No. Don't."

She smiles. "I'm glad you're back. Except that I worry about the danger you're in."

"If I'm not worrying, why should you?"

"I don't need to answer that." Her voice is husky, almost stagy. She leans forward and says, "I missed you, Shadrach. It amazed me how much I missed you. You don't like me to say things like that, do you?"

"What gives you that idea?"

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"Your face. You look so uncomfortable. You don't want to hear soft words from me. You don't think it's proper for mean, tough Dr. Lindman to talk that way."

"I'm just not used to you that way. It's a side of you that's unfamiliar to me."

"You probably don't even like the way I'm dressed tonight. But I can be the other Katya again, if you want. Wait. I'll go and change into my lab smock."

She sounds almost serious.

"Stop it," he says. He takes her hand. "You look lovely tonight."

"Thank you." Her voice is steely. She withdraws the hand.

"Well, you do. And I'm supposed to say so, and I did. That's how the game is played. Now you're supposed to say—"

"Let's not play any more games, Shadrach. Okay?"

"Okay. Did you dress like that for me or for you?"

"For both of us."

"Ah. Just for the hell of it, right? Because you just felt like coming on sexy. Right?"

"Right," she says. "Okay?"

"Okay. Okay."

"Is it okay to tell you that I missed you? Don't force me to be some kind of machine, Shadrach. Don't make me be whatever your image of me is. I'm not asking you to tell me you missed me. But give me the right to express what *I* feel. Give me the right to be silly once in a while, to be soft, to be inconsistent, if I want to be. Without worrying about which one the real Katya is. I'm always the real Katya, whoever I am at the moment. Okay, Shadrach?" she insists.

"Okay," he says, and takes her hand again, and she does not pull it away. After a moment he says, "What's been happening here while I was gone?"

"You know about the Khan's headaches, I assume."

"Sure. That's why I came back when I did. The moment I picked up the telemetering impulses from him, in Peking."

"Is it something serious?"

"We're going to have to operate," he says. "As soon as some special equipment I've ordered is ready."

"Is brain surgery especially risky?"

"Not as risky as you might think. But the Khan doesn't like the idea of it at all, lasers poking into his skull, et cetera, et cetera. I've never seen him look so spooked about an operation. But he'll be all right. What else has been going on here?"

"There was the funeral."

"Yes. I know. I was in Jerusalem then, or Istanbul. I saw some photographs later."

"It was monstrous," Katya tells him. "It went on for days and days. God knows how much it must have cost. Everything stopped, practically, while we had the speeches, the parades, the brass bands, the planes flying in formation, all kinds of rituals and celebrations. And Genghis Mao sitting in the middle of the plaza drinking everything in."

"What a pity I missed it."

"I'm sure you were heartbroken."

"Yes. Terribly." They laugh. He

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is beginning to think he rather likes the way she looks in that dress. He says, "What else? How's your project going?"

"Very well. Seventeen kinesic traits are equivalented now. We've made more progress in the past three weeks than in the previous three months."

"Good. I want to see that automaton of yours finished fast. I want your project to be the first one ready to go."

"Have you talked to Nikki since you've been back?"

"No," he says. "Not yet."

"I hear that Avatar's been moving fast too. They say that they're practically done converting from Mangu's parameters to—to those of the new donor. Weeks ahead of schedule. It scares me, Shadrach."

"It shouldn't."

"I can't help thinking—what if—if they ever actually do—"

"They won't," he says. "It's not going to happen. I'm much too valuable to Genghis Mao as I am."

" 'Redundancy is our main avenue of survival,' remember. How many other doctors do you think he has waiting? Complete with telemeter implants and everything?"

"None."

"Can you be sure?"

"Buckmaster would know if a duplicate set of implants had ever been built. He never heard anything about that."

"Buckmaster's dead, Shadrach."

He lets the point pass. "I know that there's no duplicate Shadrach Mordecai waiting somewhere to take over when I go. I realize now how dependent Genghis Mao is on me, exclusively on me, irreplaceable me. And I have a notion I'm going to be a lot less redundable in the near future, a lot more indispensable. I'm not worrying about Avatar, Katya."

"I hope you know what you're doing."

"So do I," he says. He gestures toward the lounge exit, just below the vast blank-eyed portrait of sad silly Mangu. "Let's go upstairs," he suggests, and she smiles and nods.

Now it is the morning of the operation. Genghis Mao lies face down upon the operating table, awake, fully conscious, occasionally turning his head to stare sourly at the doctors assembled about him—Shadrach, Warhaftig, and Warhaftig's neurological consultant, an Israeli named Malin. There is no mistaking the Khan's look: he is frightened. He is trying to cover his fear with his usual swagger, but he is not succeeding. In ten minutes the surgical lasers will be drilling into his skull, and the prospect does not charm him. But for the headaches—whose effects are visible now, as imperial grimaces and winces—none of this would be happening.

The Chairman's head has been shaved. Without his thick black mane he looks, strangely, much younger, more vigorous: that sturdy knob of a skull, bare, speaks of the immense strength of the man, the intensity of the driving forces within him. The musculature of his scalp is powerful and conspicuous, hills and valleys outlined in bold

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relief, a rugged landscape of cords and ridges nurtured and developed through nearly ninety years of ferocious talking, thinking, biting, chewing.

Warhaftig is ready to make the first incision. The strategy of the operation has evolved during three days of conferences. They will not go near the cerebral centers. The skull is to be opened high on the occipital curve, and the drainage device is to be inserted in the brain stem, the pons, just below the fourth ventricle near the medulla oblongata. This, everyone has agreed, is the optimum site for the valve, and not incidentally will keep the lasers away from the seat of reason—though any surgical slip could do damage to the medulla, which controls vasomotor and cardiac functions and other vital autonomic responses. But Warhaftig is not one who slips.

The surgeon glances at Shadrach. "Is all well?"

"Fine. Go when ready."

Warhaftig lightly touches Genghis Mao's neck. The Khan does not react, nor does a sharp pinch at the base of his skull bring any response from him. He is under local anesthesia, induced as customary through sonipuncture.

"Now," Warhaftig says. "We begin."

He makes the initial cut.

Genghis Mao closes his eyes—but, Shadrach's inner monitors tell him, the Khan is still at full awareness, tense, poised like a wary leopard on a high branch. The skin is peeled back and clamped by retractors. Warhaftig steps aside and allows Malin to make the cranial incision. The neurosurgeon's touch is not as deft as Warhaftig's, but Malin has spent thirty years slicing into skulls, and he knows as Warhaftig cannot possibly know just how much margin for error his cuts can have. There, now: there is a window into the Khan's head. Shadrach, peering on tiptoes, stares in awe at the very brain that conceived the theories of centripetal depolarization, that hatched the Permanent Revolutionary Committee, that carried mankind out of the chaos of the Virus War. There, there, right there, in that mysterious gray lump, it all was spawned, yes.

They are searching now for a site for the drainage valve. Warhaftig has resumed command. Instead of a laser, he uses at this point a hollow needle filled with liquid nitrogen, cryostatically cooled to a temperature of -160° C. The needle, sliding to the depths of the Khan's brain stem, freezes the brain cells on contact, and if contact is prolonged it will kill them. While Malin calls off instrument readings and Shadrach supplies telemetering data on the state of Genghis Mao's autonomic activities, Warhaftig, reassured that he is not destroying vital neural centers, opens a space for insertion of the drainage device. Everything goes smoothly. The Khan continues to breathe, to pump blood, to generate the normal array of electroencephalographic waves. There is lodged within him now a tube to shunt excess cerebrospinal fluid into his circulatory system, a valve through

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which the fluid can be drawn, and a telemetering implant that will relay to his physician constant reports on the functioning of that valve and the fluid levels of his cranial ventricles. Bone and skin are restored to place; the Khan, haggard and pallid but smiling now, is wheeled to the recovery station.

Warhaftig turns to Shadrach. "As long as we have everything set up, let's proceed to the next operation immediately. Yes?" He reaches for Shadrach's left hand. "You want the telemetering implant to go here, is that correct? Embedded in the thenar muscles. But not at the base of the thumb, eh? Over here, closer to the center of the palm, do I have it? All right. Let's scrub you up and get along with it, then."

Shadrach and Nikki, meeting for the first time since his return, are ill at ease with one another. He tries to smile, but he doubts that his face is doing a very good job of it, and her cordiality seems equally forced.

"How is the Khan?" she asks finally.

"Healing," Shadrach says. "As per usual."

She glances at his bandaged left hand. "And you?"

"A little sore. This implant was larger than the others. More complex. Another day or two and I'll be fine."

"I'm glad everything went well."

"Yes. Thank you."

They go through the ritual of forced smiles again.

"It's good to see you," he says.

"Yes. Very good to see you."

They are silent. But though the conversation has faltered, neither begins to depart. He is surprised how unmoved he is by her beauty today: she is as splendid as ever, but he feels nothing, nothing at all, only a kind of abstract admiration, as he might feel for a marble statue or a spectacular sunset. He tests it. He summons memories. The touch of her smooth skin against his. The fragrance of her dark torrent of hair. Nothing. The all-night conversations, when there was so much to tell each other. Nothing. Nothing. Thus does treason carbonize love. But she is still beautiful.

"Shadrach—"

He waits. She is groping for words. He suspects he knows what she wants to say: to tell him once more that she is sorry, that she had no choice, that although she betrayed him it was only out of a sense of the inevitability of what would befall. It is an endless awkward moment.

At last she says, "We're doing well on the project."

"So I've been told."

"I have to go on with it, you know. There's no other way for me. But I want you to realize that I hope it never is used. I mean, it's valuable research, it's a tremendous breakthrough, but I want it to remain just a laboratory achievement, just a—a—"

She falters.

"That's all right," he tells her, and hears an odd tenderness creeping into his voice. "Don't torment yourself about it, Nikki. Do your work, do it well. That's all you

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need to think about. Do your work." For an instant, only an instant, he feels a flicker of what he once felt for her. "Don't worry about me," he says gently. "I'm going to be all right."

On the third day the bandage comes off his hand. There is only a faint pink line to mark the place where the implant was inserted, a barely perceptible furrow against the darker pink of his palm. Like his master, Shadrach is a swift healer. He flexes his hand—slight muscular soreness, he notes—but is careful not to clench it into a fist. He is not yet ready to test the new device.

At the end of the week, with Genghis Mao rapidly mending, Shadrach allows himself an evening in Karakorum. He goes alone, on a mild summer night with the scent of new blossoms and the hint of rain in the air, and hires a cubicle in the dream-death pavilion, strips and dons the loincloth and the chest-bands, takes the polished talisman from the lioness-headed guide, looks upon the pattern of spiraling lines, disappears into the hallucination. Once more he dies. He gives up hope and fear and striving and dismay and anxiety and need, he gives up breath and life, he dies to the world and is reborn in another place, rising above his hollow outworn husk, looking down upon it, that long brown empty form with its spidery sprawl of limbs hanging out uselessly, and floats out, out into the fragrant void, where time and space are cut loose from their moorings. Everything is accessible to him, for he is dead. He enters a city of ox-carts and alleyways and low wooden buildings strung out in rambling impenetrable mazes, a place of picturesque squalor and medieval filth, and sees the lords and ladies in their green and scarlet brocaded robes tumbling in the unpaved streets, howling, sobbing, trembling, sweating, crying to the Lord, clutching at the throbbing swollen places under their arms and between their legs. Yes, yes, the Black Death, and Shadrach goes among them saying, I am Shadrach the healer, come from the land of the dead to save you, and he touches their fiery swellings and lifts them to their feet and sends them forth into life, and they sing hymns to his name. And he moves on to another city, a place of bamboo and silk, of gardens rich with chrysanthemums and junipers and small contorted pines, and in the stillness of the day a fireball bursts in the sky, a great mushroom cloud bellies toward the roof of heaven, houses break into flames, the people rush into the blazing streets, small folk, almond-eyed, yellow-skinned, and Shadrach, standing like an ebony tower among them, tells them in soft tones not to be afraid, that it is only a dream that afflicts them, that pain and even death may yet be rejected, and he spreads forth his hands to them, soothing them, draining the fire from them. The sky fills with ash and soot and pumice and it is the night of Cotopaxi once more, the volcano rumbles and hisses and

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drones, the air turns to poison, and the young black doctor kneels in the streets, breathing in the mouths of the fallen, raising them, comforting them, and he moves on. The howling Assyrian hordes ride through the streets of Jerusalem, slashing without mercy, and Shadrach patiently sews together the sundered bodies of the fallen, saying, Rise, walk, I am the Healer. The great woolly beasts flee as the glacial snows melt beneath the suddenly colossal sun, and the people of the caves grow thin and feeble, and Shadrach teaches them to eat grasses and seeds, to collect the berries of the newly sprouted thickets, to string weirs across the streams to snare the frisky fishes, and they worship him and paint his image on the walls of the holy cave. He takes Jesus from the cross when the Roman soldiers go off to the tavern, slinging the limp body over one shoulder and hurrying into a dark hut, where he wipes the blood from the maimed hands and feet, he applies ointments and unguents, he mixes a healing draft of herbs and juices and gives it to Him to drink, telling Him, Go. Walk. Live. Preach. He seines the fragments of Osiris from the Nile, he rejoins the severed members, he breathes life into the fallen god and summons Isis, saying, Here is Osiris. I, Shadrach, restore him to you. The sky grows green with strange cloudbursts, and the Virus War breaks above the cities of mankind, and the alien rot enters the bodies of mankind, and as the people groan and fall Shadrach raises them, saying, Fear nothing. Death is transient. Life awaits you. And in the heavens is the smiling face of Genghis Mao. Shadrach drifts across the centuries, moving freely in space and time, and gradually he becomes aware that he is no longer alone, that there is a woman beside him, plucking at his sleeve, trying to tell him something. He ignores her. He hears celestial choirs singing his name: "Shadrach! Shadrach!" And the heavenly voices cry, "O Shadrach! You are the true healer, you are the prince of princes! Shadrach who was, Genghis to be! All hail Shadrach!" And a voice like thunder cries out, "You henceforth shall be known as Genghis III Mao V Khan!"

And the woman plucks at his sleeve, and he sees that she is Katya, and he says, "What do you want?" She says, *It's too late.* He says, "The next donor's already been picked?" *Yes.* "I don't suppose you'd care to tell me his name." *I don't think I should.* "Who is he?" *You,* she says. The world erupts in flame and flood. The laughter of Genghis Mao rolls through the heavens, shattering mountains.

Shadrach awakes. He sits up.

He clenches his fist and holds it tightly clenched.

Out of Ulan Bator, 400 kilometers to the east, comes the terrible jolt of Genghis Mao's agony, the silent scream of the sensors reporting the wave of pain that is sweeping through the Khan.

Shadrach approaches Interface Three and announces, "Shadrach

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Mordecai to serve the Khan."

He is scanned. He is approved. He is admitted.

It is close to midnight. Shadrach goes at once to the Khan's bedroom, but Genghis Mao is not there. Shadrach frowns. The Khan has been strong enough to leave his bed for the past several days, but it is odd that he should be wandering around this late at night. Shadrach finds a servitor who tells him that the Khan has spent most of the evening in the secluded study known as the Khan's Retreat, on the far side of the seventy-fifth-story compound, and is probably there now.

Onward, then. Into the Khan's office—he is not there—and thence to the private imperial dining room, empty, and then Shadrach goes into his own office, where he pauses a moment, collecting himself amidst his familiar and beloved possessions, his sphygmomanometers and scalpels, his microtomes and trephines. Here, in a flask, is the authentic abdominal aorta of Genghis II Mao IV Khan. Surely a treasure of medical history, that one. And here, the newest addition to Shadrach's museum, is a lock of Genghis Mao's thick, rank, preternaturally dark hair, an exhibit perhaps more fitting for a museum of witchcraft and voodoo than one of medicine, but yet appropriate, for it was removed in the course of preparations for brain surgery carried out successfully in the celebrated patient's ninetieth (or eighty-fifth, or ninety-fifth, or whatever) year of life. And so. Onward. He presents himself to the door of the Khan's retreat and asks entry.

The door rolls back.

The Khan's Retreat is the room least used on the floor, accessible only through Shadrach's office and insulated against the intrusion of even the loudest external distractions. Its ceiling is low, its lights are dim, its furnishings are ornate and oriental, running toward thick draperies and elaborate carpets. Genghis Mao lies on a cushioned divan along the left-hand wall. Already his shaven scalp is covered by a thin black stubble. The vitality of the man is irrepressible. But he looks shaken, even dazed.

"Shadrach," he says. His voice is thick and scratchy. "I knew you'd get here. You felt it, didn't you? About an hour and a half ago. I thought my head was going to explode."

"I felt it, yes."

"You told me you were putting a valve in me. To drain off the fluid, you said."

"We did, sir."

"Doesn't it work right?"

"It works perfectly, sir," Shadrach says mildly.

Genghis Mao looks confused. "Then what made my head hurt so much a little while ago?"

"This did," says Shadrach. He smiles and stretches forth his left hand and clenches his fist.

For a moment nothing happens. Then Genghis Mao's eyes widen in shock and amazement. He growls and clamps his hands to his temples. He bites his lip, he bows his naked head, he drives his knuckles against his eyes, he mutters anguished guttural curses. The im-

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planted sensors that report on the bodily functions of the Khan tell Shadrach of the intense reactions within Genghis Mao: pulse and respiration rates climbing alarmingly, blood pressure dropping, intracranial pressure severe. Genghis Mao coils into a huddled ball, shivering, groaning. Shadrach lets his fingers relax. Gradually the pain recedes from Genghis Mao, the tense crumpled body uncoils, and Shadrach ceases to feel the broadcast of shock symptoms.

Genghis Mao looks up. He stares at Shadrach for a long moment.

"What have you done to me?" Genghis Mao asks in a harsh whisper.

"Installed a valve in your skull, sir. To drain away the dangerous accumulations of cerebrospinal fluid. However, I should tell you that the action of the valve has been designed to be reversible. Upon telemetered command it can be made to pump fluid *into* the cranial ventricles instead of draining it from them. I control the action of the valve, here, by a piezoelectric crystal implanted in my palm. A twitch of my hands and the fluid ceases to drain. A harder twitch and I can pump it upward. I can interrupt your life-processes. I can cause you instant pain of the kind you have now experienced twice, and in a surprisingly short span of time I could cause your death."

Genghis Mao's facial expression is entirely opaque. He considers Shadrach's declaration in silence.

Eventually he says, "Why have you done this to me, Shadrach?"

"To protect myself, sir."

The Khan manages a glacial smile. "You thought I would use your body for Project Avatar?"

"I was certain of it, sir."

"Wrong. It wouldn't ever have happened. You're too important for me as you are, Shadrach."

"Yes, sir. Thank you, sir."

"You think I'm lying. I tell you that there was never any possibility we would have activated Project Avatar with you as the donor. Don't misunderstand me, Shadrach. I'm not pleading with you now. I'm simply telling you how things really stand."

"Yes, sir. But I know your teachings concerning redundancy, sir. I feared I was about to be made dispensable. I have made myself indispensable now, I think."

"Would you kill me?" Genghis Mao asks.

"If I felt my life was in danger, yes."

"What would Hippocrates say about that?"

"The right of self-defense is allowed even to physicians, sir."

Genghis Mao's smile grows warmer. He seems to be enjoying this discussion. There is no trace of anger on his face.

He says calmly, merely raising a speculative hypothesis, "Suppose I have you seized by stealth, immobilized before you can clench your fist, and put to death?"

Shadrach shakes his head. "The implant in my hand is keyed to the electrical output of my brain. If I die, if I'm mindpicked in any way, if there's any sort of significant interruption in my brain waves, the

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valve automatically begins pumping cerebrospinal fluid to your medulla. The moment of my death is the automatic prelude to your own, sir. Our fates are joined. Guard my life, sir, for your own sake."

"And if I have the valve removed from my head and replaced by one that isn't quite as—ah—versatile?"

"No, sir. There's no way you could enter surgery without my implant system notifying me of it. I'd take defensive action, naturally, at the first moment. No. We have become one entity in two bodies, sir. And we'll remain that way forever."

"Very clever. Who built this mechanical marvel for you?"

"Buckmaster did, sir."

"Buckmaster? But he's been dead since May. You couldn't have known—"

"Buckmaster is still alive, sir," Shadrach says softly.

Genghis Mao considers that. He grows extremely thoughtful. He is silent a long while.

"Still alive. Strange."

"Yes."

"I don't understand."

Shadrach makes no reply.

After a time Genghis Mao says, "You've planted a bomb in me."

"So to speak, sir, I have."

"I have power over all of mankind. And you have power over me, Shadrach. Do you realize what that makes you? You are the true Khan now! All hail, Genghis III Mao V!" Genghis Mao laughs savagely. "Do you understand that? Do you know what you have done?"

"The thought has crossed my mind," Shadrach admits.

"You could force my resignation. You could compel me to name you as my successor. You could kill me and assume the Chairmanship, perfectly legitimately. You see that? Of course you see that. Is that what you mean to do?"

"No, sir. The last thing in the world I want is to be Chairman."

"Go ahead. Wiggle your hand at me, stage a coup d'etat. Take power, Shadrach. I'm old, tired, bored, crumbling. I'm willing to be overthrown. I admire your shrewdness. I'm fascinated by what you've done. No one has ever fooled me so thoroughly before, do you know that? You've accomplished what thousand of enemies have utterly failed to do. Quiet Shadrach, loyal Shadrach, dependable Shadrach—you have me beaten. You own me. I am your puppet now, do you see that? Go on. Make yourself Chairman. You've earned it, Shadrach."

"It's not what I want."

"What do you want, then?"

"To continue as your physician. To protect your health and strive to extend your life. To remain by your side and serve you according to my oath."

"That's *all*?"

"That's all. No. One thing more."

"Let's hear it."

"I request a place on the Committee, sir."

"Ah."

"Specifically, I want authority in the sphere of public health. Government medical policy."

"Ah. Yes."

"Control over distribution of the Antidote, sir. I mean to develop a program for immediate worldwide

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treatment of the healthy population," Shadrach says. "And expansion of whatever programs currently exist for research into a permanent cure for the organ-rot. That is, a total reversal of what I understand is existing PRC policy."

"Ah!" Genghis Mao begins to laugh. "Now it emerges! You *do* intend to be Khan, then! I keep the Chairmanship, but you call the tunes. Is that it, Shadrach? Is that what you've engineered? Very well. You have me. I'm yours, Shadrach. You'll join the Committee at the next meeting. Draw up your policy statements and submit them." He glances somberly at Shadrach's left hand. "All hail," the Chairman cries. "Genghis III Mao V!"

When he leaves the Khan's retreat, Shadrach's route back to his own suite takes him through his office, through Committee Vector One, and into Surveillance Vector One, where he halts a while, as is his habit, to watch the show on the winking screens. All is quiet in the Grand Tower of the Khan. It is the depth of night; all Asia sleeps. But across the planet, out there in the Trauma Ward, life goes on, and also death. Shadrach stands before the multitude of screens, following the random flow, the suffering, the striving, the struggling, the dying. The walking dead, wandering the streets of Nairobi, Jerusalem, Istanbul, Rome, San Francisco, Peking, shambling across all the continents, the procession of the damned, the lost, the tortured, the condemned. Somewhere out there is Bhishma Das. Somewhere, Meschach Yakov. Somewhere, Jim Ehrenreich. Shadrach wishes them joy and good health for such of life as is left to them. To all, joy! To all, good health!

He thinks of the laughter of Genghis Mao. How amused the Khan seemed at his predicament! How relieved, almost, at having the ultimate authority stolen from him! But the Khan is beyond comprehension; the Khan is alien, mysterious, unfathomable, ultimately inscrutable. Shadrach does not really know what will happen now. He cannot imagine what counterploy Genghis Mao may already have conceived, what traps he is even now devising. Shadrach will walk warily and hope for the best. He has planted a bomb in Genghis Mao, yes, but he has also seized a tiger by the tail, and he must be careful lest he stumble between the metaphors and be destroyed.

He stands mesmerized before the dazzling dance of the screens of Surveillance Vector One. It is the fourth of July, 2012. Wednesday. Gentle rain is falling in Ulan Bator, which next week shall be renamed Altan Mangu in honor of the slain viceroy, who already has been forgotten by most of mankind. In this night death will travel the globe, harvesting his thousands; but in the morning, Shadrach Mordecai vows, things will begin to change. He stretches forth his left hand. He studies it as though it be a thing of precious jade, of rarest ivory. Tentatively he closes it, almost but not quite clenching his fist. He smiles. He touches the tips of his fingers to his lips and blows a kiss to all the world. ■

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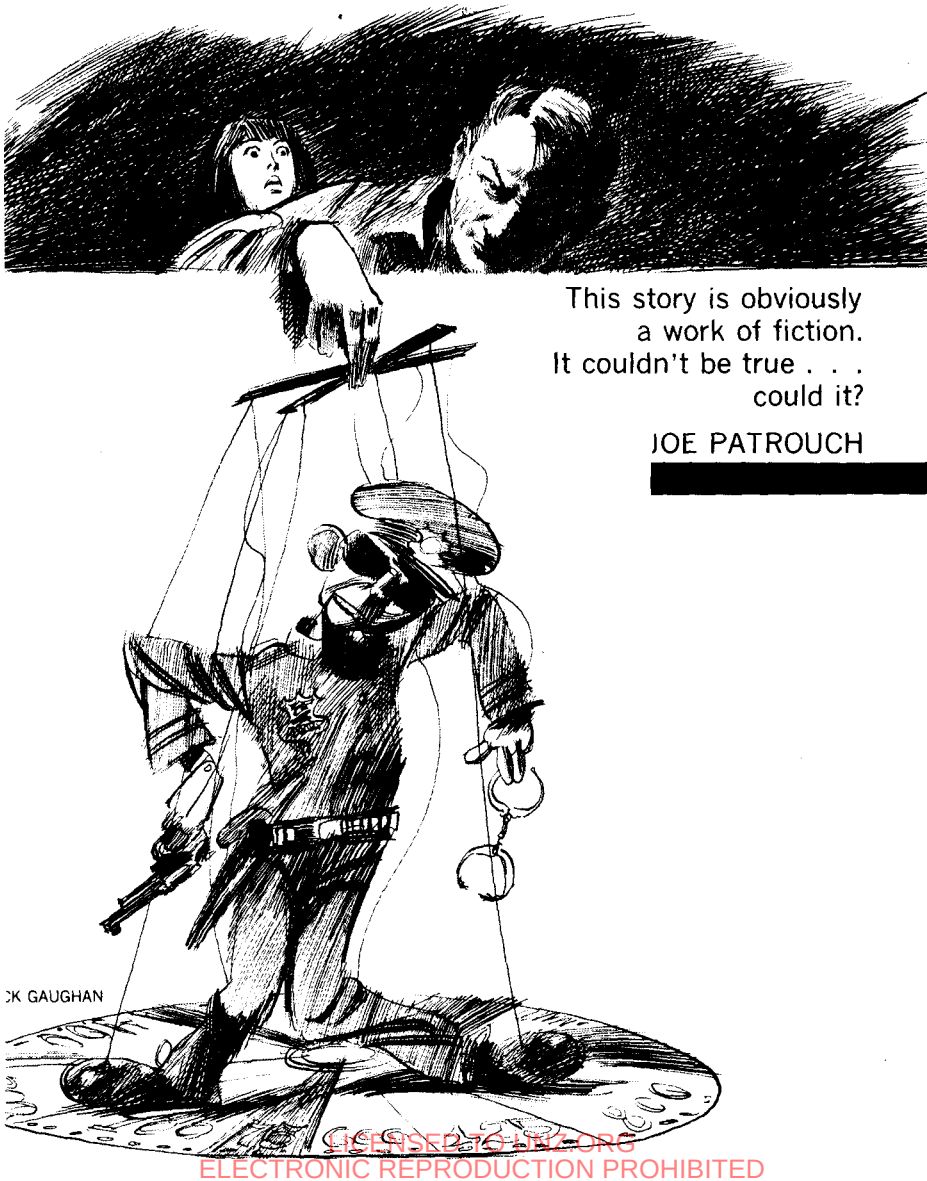
the man who murdered TELEVISION



This story is obviously
a work of fiction.
It couldn't be true . . .
could it?

JOE PATROUCH

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Strange how some people have a social consciousness and others don't. How some look at the way things are and try to figure ways to make things better for everybody, while others figure if they're all right, then everyone's all right. For me, though, the most interesting are those who start out one way and end up the other. My daughter, Carole, for instance.

Carole's twenty-seven now, married, kids of her own. She lives out on Friar Tuck Drive in Sherwood Forest Estates and minds her own business, in a way. For a while, though—when she was in college and just after she graduated—she got kind of radical. One's social consciousness tends to get raised at that age, and it happened to hers, too.

Her "thing" was diet. She was anti-starches and anti-cholesterol and anti-additives and anti-I-don't-know-what-all. "You are what you eat," she'd pontificate. "Have you ever seen a cardiovascular system clogged with cholesterol?" This always made me feel nervous and awkward—what do you say to someone who's on a kick and kicking *you*?—so I'd reach in my pocket for a cigarette and light up. That was obviously the wrong thing to do. "Have you ever seen," she'd lecture, "a lung clogged with cigarette tars?"

Sometimes Carole would generalize from all this. "We're a nation, a world, of polluters," she'd proclaim. "Not only do we pollute our own bodies with the wrong foods, with drugs, with cigarettes, but we pollute our air and our water with industrial wastes that . . ." "Not to mention the moral pollution of pornography," I'd add slyly. (She saw nothing wrong with pornography.) "That's an entirely different matter and you know it," she'd snort, "because no one is injured by pornography." "V.D.?" I'd suggest. "From reading a book or looking at pictures? You're talking nonsense. Anyhow, the subject was how we're the only species on this planet that fouls its own nest so badly. . . ." And on and on she'd go.

She carried signs protesting the lack of effective air-pollution control devices at our local gas and electric company, and she carried signs protesting that same company when it raised its rates to pay for the installation of such equipment. She visited welfare mothers to inform them how best to spend their food dollars and wondered why they so often seemed sullen, even smoldering with anger. I'd ask her, "What if someone came to your door and told you what to buy and what not to buy?" "But that's different," she'd protest; "they don't know any better." "Couldn't manage without you, huh?" "They could manage to suffer from heart disease and malnutrition and emphysema and . . . and anyhow, I'm doing it for their own good. It's so

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frustrating being put down for doing good." "About as frustrating as having good done to you, I expect," I'd remark. She didn't understand that for a long time. But eventually she did, and that's when she started minding her own business.

It happened this way. The husband of one of her welfare mothers had come home and thrown Carole out for putting her nose in where it wasn't wanted. She'd come home all upset. This time she was in to "What can any individual do in a society as corrupt and uncaring as ours? We're killing ourselves with bad diet, drugs, pollution. We're killing our neighbors in unjustified wars. We're the only species that so fouls its own nest. . . ."

I decided the time had come to level with her.

"Carole, sit down," I said. "There are some things I want to explain to you."

Something in my manner combined with her own depression to make her sit down and remain quiet. I was surprised to find myself, not merely reacting to her as usual, but actually in control of the conversation. Where to begin?

"Bear with me for a minute here, Carole. I don't know if I'll make myself clear right away."

"Sure."

"Let's say a neighborhood is infested with rats. What do you think ought to be done?"

"Direct action. Go in there with traps and poison and guns and sticks, whatever it takes, and get rid of them."

"But what about indirect action? What about the man who feels just as strongly as anyone else, but who doesn't go out to set traps?"

"He's a hypocrite, a parlor liberal. Reads his paper and sympathizes at a distance over brandy. No, you've got to go down into the trenches, among the people."

"And how about the fellow who invented the trap in the first place? How about the man who spends years in college and graduate school studying chemistry in order to make a better, safer rat poison? Isn't he at least as important as the ones who set the traps and poison?"

She hesitated. "I never thought of it that way before," she admitted. "I don't know."

"Do you know what I majored in in college?" I asked.

She looked embarrassed. "No," she replied. I could see she was wondering how she could have been so thoughtless as to get to her age without learning such a simple thing about her own father. I had to explain to her that her lack of knowledge wasn't her fault. It was mine. Deliberately.

"When I was a kid, I was interested in radio. Why, when I was eight, I built my own crystal set mostly from pieces of junk I'd found here and there. That set worked too. I'd sit up at night

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when my parents thought I was asleep, and I'd listen to music all the way from Chicago."

"So you majored in electrical engineering?"

"No. As it turned out, I was interested in a lot of things. When I had to pick only one, I made it biology. But I liked to combine interests. I couldn't chuck the radio for biology any more than I could chuck biology for radio. Eventually I got a postgraduate fellowship to do research in what today you'd probably call a hybrid between electronics and molecular biology."

"I don't see how those two can be combined," she puzzled.

"I wanted to work on living cells, their health, growth, reproduction. Most people come at that from chemistry. But I thought I was on to something using electromagnetic radiation."

"Radio waves?"

"Of different frequencies."

"And . . .?"

"I didn't have the sophisticated and delicate equipment I'd have if I were doing the work these days. It was all very crude, I have to admit. But still I believed I had discovered the worst form of environmental pollution that's ever been known to man."

Carole looked skeptical. She couldn't tell whether I was putting her on or not.

"There is always a certain amount of electromagnetic radiation in our natural background. Just as there's always a certain amount of radioactivity around. But too much radioactivity can kill living cells. So can too much electromagnetic radiation."

"How much is too much?"

"Carole, in this country we have so increased the electromagnetic background against which we live that it is now too much. Hundreds of thousands of people are sick and dying from it each year. Only we call it something else because we're looking at the effect not the cause, at what is directly doing the killing and not at what is causing the cause. We call it cancer."

"Wait a minute, Dad. You're moving too fast for me. You mean, you found that radio and television and citizen band radio . . . that all those things cause cancer?"

"The broadcast energy that is received and turned into the sounds and pictures from our sets, yes. That energy causes cancer. The farther into this century we've gotten, the more our bodies have been soaked and saturated by the electromagnetic energy broadcast by our communications systems. And that in turn has caused the incidence of cancer to rise. Oh, the statistics are screened some. We're told that more people live long enough to get cancer now that so many of the other killing diseases are under control, and we're told that we're collecting our statistics more efficiently now, so that on the surface it looks like there are more

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NOTES TO A SCIENCE FICTION WRITER

BEN BOVA

Straight from the shoulder talk to the short story writer from the Editor of Analog

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cases when there aren't. But the correlation is still there: the farther into this electromagnetic century we've come, the more cancer there's been."

Several nights earlier I had been speaking with an astronomer friend about one of the implications of this—though of course I hadn't come right out and explained the whole thing to him. He was talking about how the radio-astronomers were certain that, given powerful and sensitive enough instruments, they could detect the electromagnetic radiation from intelligent civilizations light-years distant. I had been mysteriously skeptical.

"That's why I was insisting to Bill the other night," I went on, referring to the conversation, "that our radio-astronomers aren't likely to detect *intelligent* species by their electromagnetic radiation—the sum total of their daily communications leaking out into interstellar space. Any civilization which knowingly exists bathed constantly in such a field will turn out to be both stupid and short-lived. Too stupid to live long enough to have their civilization overlap ours. You see now why I argued that way."

"Dad, who cares about radio-astronomers and extraterrestrial civilizations? What about our own? You make it sound as if we're committing suicide."

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"Not deliberately. Just stupidly. But we are in fact committing racial suicide."

"Can't we do something about it? Tell someone?"

"I tried back then, Carole, during WWII, but no one would take me seriously. Already the money invested in electromagnetic forms of communications was too great. At first they insisted that I needed more proof, not simply the little data I had. Not conclusive, they said. Can't scare the public over nothing. Then they decided I was a crackpot. My postgraduate research money dried up. I was made aware, not very subtly, that if I pushed it—really pushed it—something fatal might happen, an accident."

I paused to get control of myself.

"Carole, I was scared. You're right about one thing. The individual can't do much against powerful, vested interests like those. So I changed my name, dropped completely out of sight, became another person with another career. That's why you didn't know what my major was or anything. It wasn't callousness or lack of interest on your part. It was self-protection on mine. I gave up that research . . . for you and for your mother."

Now I began to feel guilty and ashamed. Carole's mother had died of cancer when Carole was only four. And I was the only one who had known what caused cancer, and I hadn't been able to help her—or any of the others. Not directly. Carole didn't reproach me about my decision to stop research.

I leaned towards her. This next part was important too.

"There is one other thing you absolutely must realize, Carole. It's not a matter of publicizing the relationship between television and cancer. Given the choice, people would rather have the television than live with a drastically reduced incidence of cancer. You see that, don't you?"

"Like with cigarettes," she said quietly. Her example made me cringe. "People would rather smoke than live with the threat of heart disease and lung cancer lowered. It only happens to someone else." She understood.

"Exactly. And fifty thousand a year killed on the highways doesn't lessen the demand for automobiles."

We looked bleakly at one another, trying to feel Channel 7 in the marrow of our bones. Maybe our species wasn't one of the intelligent ones.

"What can we do?" Then suspicion lit in her eyes. "What are you doing? How does a free-lance writer help?"

I smiled thinly. "Well, maybe someday I'll write all this up as a story and plant some seeds of suspicion in some minds where it might do some good. Basically, though, my writing is simply a way

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of earning money so I can do the really important work."

I probably sounded a little too melodramatic, to judge from the look she gave me. Well, she hadn't heard anything yet.

"I'm part of a group that has decided you can't buck city hall. No way we can exert enough pressure to shut down all the broadcasting stations in the world. Instead, we've decided to do what we can to reduce the demand."

"You mean, get people not to watch television or listen to radio?"

"Exactly. If they don't turn it on, the industry will dry up and blow away."

"How can you stop people from turning on their sets?"

"We decided that programming was the key. We are working to make radio and TV programming so bad that people just won't bother. We've managed to make radio a wasteland of interchangeable DJ's playing interchangeable records. In TV we have members who see to it that really excellent scripts are mangled in production, that good series ideas are run through the grinder until they come out as tasteless paste, that the really excellent series are kept off the air while poorer ones are run, that talent is driven from the industry while only the ordinary and run-of-the-mill remains."

"I don't believe it."

"But it seems to be working," I continued. "More people are going to the movies than ever before, more books than ever are being sold and read, and neither movies nor books use electromagnetic broadcast energy. But it's slow, very slow. The industry may not topple in my lifetime or yours."

"There's got to be a better way." Carole shook her head slowly. "There's got to be."

I shrugged my shoulders. "We couldn't find it."

"You say it all depends on *broadcast* radiation?"

I nodded. She wandered off mulling the problem over.

Well, that's the story. After that, Carole quit being a social activist. The gas and electric company can put in its pollution control equipment and try to pay for it with rate increases without any protest from her. And the welfare mothers can buy their kids chocolate bars without looking over their shoulders.

This doesn't mean that Carole now thinks my approach will succeed. She doesn't think that I'm about to go down in history as "the man who murdered television and saved the world." She's too cynical to think that people will ever abandon TV no matter how bad the programming gets.

She's taken another approach, and she considers her two children a vote of confidence in the future. She works extremely hard helping her husband.

He's an account executive for a cable television firm. ■

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ALIENATION

What's that Third Law of Thermodynamics? You can't get out of the game? JAYGEE CARR

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"Bu-bu-but, darling, you *can't,*" the mother sputtered. "To throw the rest of your life away . . ."

The daughter laughed, carefully holding her head still so the mech could continue piling her hair into the currently fashionable elaborate hairstyle. The mother's conservative silver hair fell in a long glittering sheet, a style popular some years back. (Someone had told her that all she needed was a blue band holding her hair back to be a perfect Alice-in-Wonderland. Perfect and wonder together sounded too good to miss, so she had kept the style ever after, remaining faithful through a dozen fashion cycles. No one had called her an Alice-wonder since, and she had forgotten friend and compliment; but habit remained.)

"I'll call your father, he'll know what to do," said the mother firmly, gratified at the ideal solution to her dilemma.

"Who is he this week," asked the daughter, yawning. For a while, when she was younger, it had amused her to "borrow" her various fathers, not for long, just to show her mother she could. But she had rapidly gotten bored with the game; in the first place, it was too easy, and in the second place, the prizes were real flats. (Face it, the Old Lady was getting—well—*old.*)

"I meant," the mother inspected her perfect silver nails complacently, "your *real* father."

"Mother!" the daughter sat up, and the mech squeaked indignantly. "You can't mean—you don't *know*—it's against the *law*!"

"That," said the mother dreamily, "was half the fun."

"Hmmmmmmm," the daughter leaned back to let the mech repair the damage. That might be something new, she thought. A real juice. My father. My real father. My *real*—"I don't believe you."

"Don't you?" One gleaming finger rested on the holophone panel. "Shall I phone him? Right now? Right this second?"

"Suit yourself," the daughter shrugged. What was one more mule, anyway, she'd had it with that game, hadn't she? That's why she was flipping out, wasn't it? "There's nothing he or anyone else can do, Mother dear. I'm eighteen, and I'm checking out, you hear me, *checking out*!"

"You can't!"

"Oh, Moth—er!" Coaxing. "Why not, anyway? What have I got to keep me here, hey?"

"Me, you have me, you ungrateful—"

"Don't be a wormbrain, Mom. I cramp your style, and you know it."

"All right, I'll put you on the list for an apt of your own, I still have friends who can—"

"Don't bother, Mom. I want out, all the way out, and I'm going. You can't stop me, so don't try."

"What did I do wrong," a plain-

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tive wail. "I gave you *everything.*

Dogged silence.

"Why, you were only five when I got you your very own holovision set, with scent and feel attachments. And how old were you when I got you the simugame set, fixed for golf and tennis and I forget what all. And I saw to it that you never missed a holoclass, not a one. And *toys,* why I always asked your fathers to get you toys before they gave me anything. And when you flunked your elementaries, didn't I fix that, didn't I?"

"You shouldn't have, Mom. I haven't the brains for a useful education, and we both know it. Sooner or later I had to flunk one you couldn't fix. I was grateful when it happened, really grateful." Ruthlessly she ground over her mother's wailing protests. "Face it, Mom. I haven't the brains for a profession, I haven't the talent to be a holostar, or the ambition and toughness; I've only enough artistic ability to be a talented amateur; I don't want to be a Companion; I'm not mechanical enough for repairtech. Thanks to the Automated Revolution I can't even go work on a farm without a college degree. So what's left? Watch the holo and slop charges and try to find a new mule or a new game every week? No, thanks!"

"You could be a mother!"

"With my overall rating? When I'm a hundred and ten—maybe—and maybe not. I don't want to wait."

"The Lottery—I won the right to have you—"

"And what are the odds against two of us winning? I tell you: zilch! The Lottery's *honest.* Face it, Mom. No grandkids for you. So why hope?" She seamed up a corridorweight tunic, slipped on a pair of spangled soles, and inspected herself in the mech's mirror. "Good as I'll ever look. Bye, Mom." She blew a lighthearted kiss and started toward the door.

"Wait. Darling, will I *know*? I mean, will they tell me?"

"In Roulette?" The girl frowned. "I don't think so. Whatever way I go, I'm still dead—to you. So what difference can it make?"

"It does, it does make a difference."

"I can ask, but I don't know if

ANSWERS TO QUIZ ON PAGE 169

1. Anemometer, 2. Pluviometer, 3. Sclerometer, 4. Auxanometer, 5. Velocimeter, 6. Galvanometer, 7. Actinometer, 8. Olfactometer, 9. Pyrheliometer, 10. Penetrometer, 11. Esthesiometer, 12. Stactometer, 13. Vacuometer, 14. Sympiesometer, 15. Spherometer, 16. Spirometer, 17. Photometer, 18. Pyrometer

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they'll tell you. I had a checkup last month, so I'm healthy enough for donor, if that's what's worrying you. It makes the odds even, that's good enough for me." The door opened and closed with a quiet click.

The mother sat, chewing her lip.

Donor. Did they freeze the bodies right away, or keep them alive, artificially, until all possible parts had been cannibalized? When they cyborged the brain, did the rocket ship, steel factory, rock-crusher remember it had once been human? Could she ever take an autotaxi again?

The Full Sensory tanks. That wasn't as bad. She had an FS annuity herself, but she didn't intend to use it until she was too old to enjoy anything else. FS was the ultimate spectator sport.

And the other chance, the best chance, the chance her daughter kept denying was there. That she would lose. If she lost, she'd be back within the hour, unable to play Roulette again for three months. One chance in three, roughly, depending on how much donor need there was, how many empty tanks were available. (But they said, didn't they, that it wasn't as purely chance as it was supposed to be, that if you really wanted one result, you got it. So which did her daughter want, the self-sacrifice, the aura of risk-taker, the artificial life of thrills—or what?)

Oh, well. It was almost time for The Harrowing Hours. She quickly chose a charge, settled in the easi, and turned on the holo. As the theme music swelled out, she tried to remember exactly how yesterday's episode had ended. Let's see. It looked like Evil Doctor Hendricks' scheme to get Innocent Young Miranda illegally pregnant would succeed, while dramatic new evidence in Roger's trial for gene-snookering had practically destroyed his case and Erasure seemed certain, unless amnesiac Kindly Mother Logan could . . .

Hey, bosslady, we have a live one in Booth 213.

Too right! Say, hey, frabjous day! Have our druthers on this'n, dreamboy.

Oh, come'n, bosslovely, we're not gonna waste those lovely potentials on the tanks or the donor route, are we? That's for the low-rates, or the one's who've managed to ruinate themselves, not for one of the almost-made-its.

Father Moon protect us, long and lanky, this one's for cold storage and outshipping. She won't waste. I just meant, we have our choice of destinations. Hmmmm, let's see.

Boss . . .

Tau Ceti. If we start her now, she'll just make it. She'll like Tau Ceti.

Will she? Don't you ever wonder, how all those people we send out

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feel, when they're defrosted on some primitive world, and it's "Root, hog, or die."

Most of them root enthusiastically, I understand. But she's got no kick coming, boy. She wanted out, or she wouldn't have chosen to play Roulette–and how much further out can you get than the colonies, hey?

But–

I know, we don't publicize the outshipping bit. Instead we emphasize the worst alternatives. Then when somebody comes in here . . . This girl wants to *die*, boy, and why? Look at what she put down as a reason. "Make my contribution to the society that nurtured me." Humph. Bet she got that out of one of the underground faxes. But what better contribution than helping establish a colony; if we had to depend on volunteers, where'd we be? Read *between* the lines, boy. She came in because she was *bored*. Seen everything and done everything. Not quite good enough to get a job, with as few as there are. Too much leisure and too little to fill it with. Bored. D'you know, fifty or a hundred years ago, a lot of prominent people were worried about this.

What–people being bored?

Right. That people wouldn't have enough to do, that they'd become alienated from society–nice term, alienated–because they couldn't contribute and were bored. But we couldn't run our society without people like this girl. Father Moon, those old wormbrains called themselves scientists, but all they knew how to do was cry about a trend, instead of *using* it. ■

do you know your meters?

by JOSEPH C. STACEY

Can you unscramble the first parts of these various types of meters (used in measuring various things)?

? IS USED IN MEASURING

MOAEN + METER–	1. wind velocity
IUPVOL + METER–	2. depth of rainfall
RSCOLE + METER–	3. hardness of minerals
NOAAUX + METER–	4. growth of plants
OLVCIE + METER–	5. speed of projectiles
ONAALVG + METER–	6. strength of electricity
TCNIAO + METER–	7. heat-intensity of sun's rays
FTLCAOO + METER–	8. keenness of the sense of smell
YLPHROIE + METER–	9. solar radiation
ENRPOET + METER–	10. size and strength of x-rays
STSOHIEE + METER–	11. sensitiveness to touch
TTCASO + METER–	12. a liquid in drops
CUOAV + METER–	13. low pressures
PYSSMEIO + METER–	14. velocity of water currents
RSOHPE + METER–	15. curvature of globular surfaces
ROSIP + METER–	16. capacity of the lungs
OOHTP + METER–	17. intensity of light
RPOY + METER–	18. high degree of heat

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the reference library

LESTER DEL REY

SUCH STUFF AS DREAMS:

There was a time when fantasy and science fiction were totally separate categories of fiction—or at least that was true in the minds of the readers of either branch of literature. *Weird Tales* was the classic fantasy magazine, full of Lovecraftian horrors—albeit some of those had a certain sf quality—and the strange visions of Clark Ashton Smith. The three great old science fiction magazines wanted none of that stuff—although a couple of the early Street and Smith issues of *Astounding* gave cause to doubt.

Basically, the readers were right in separating such categories. Fantasy dealt with mistaken ideas of the past—monsters leftover from pre-science days; it was very much past-centered. Science fiction dealt with man's mastery of science and the machine, and was almost totally future-oriented.

Things changed a trifle when John Campbell introduced *Unknown* (of beloved memory). Many of the stories involved the same creatures or situations as previous fantasy, but Campbell wanted fantasy that had the same rationalization and logic applied to it as should be applied to science fiction.

Still *Unknown* and *Astounding* were separate magazines. Maybe the readers often crossed over, as did the writers. But when a man picked up the magazine, he knew in advance what he was getting and could set his mind for either fantasy or science fiction. (Ladies, don't scream; in those days, it usually was a man who picked up the magazine.)

Anthony Boucher dared greatly by trying to include both fantasy and science fiction in the magazine he edited; he even admitted to some doubts about making it work at first. But still, while the reader might not know what to expect—though usually the long introduction gave him a clue—he could quickly determine whether to adjust to fantasy or sf. He need not expect ghosts in a story that was clearly based on science. (Umm, well, usually; Peter Phillips had a story entitled "Manna"—remember?)

But recently, things seem to be changing, and I think the science fiction reader has grown far more tolerant of fantasy than previously. (I'm less sure about the devoted fantasy fan. In a current line of fantasy novels I'm editing, I still consider it wise to exclude reference to future worlds or gadgetry out of science fiction, though I do want some of science fiction's brand of logical development.)

Not long ago, I had lunch with Don and Elsie Wollheim of DAW

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Books. And Don voiced what I'd been thinking for some time. He stated that science fiction and fantasy have become hopelessly blurred, and that so much of present science fiction is now really fantasy that he makes no attempt to separate them.

I've found that to be true. Anne McCaffrey's dragon stories are really fantasy, with some sf details added. Marion Zimmer Bradley's *Darkover* series depends on magic, though it's called psi powers. (In fact, with a few exceptions, stories of psi now are nothing but fantasy, with psi replacing incantations or all-powerful genii.) And while there's the straight science fiction universe of Larry Niven, there are also a lot of science fiction universes that might as well be called Secondary Universes in the Tolkien sense—the only difference is that they take place supposedly on some alien planet, instead of on Middle-Earth.

Probably, as an old hard-core sf fan, I should object. But somehow, I think there's room for straight fantasy, straight science fiction, and the growing world of science fantasy, or whatever it is. I still love *Mission of Gravity*—and *Lord of the Rings;* and if some writer of genius can somehow crossbreed those two, I won't mind.

Anyhow, speaking of Tolkien as I deliberately did, there's a new book out that should be more than welcome to Tolkien fans who are curious about the man behind the books. We've had some insight into Professor Tolkien before, but not nearly enough. Now there's a biography—**J. R. R. Tolkien, Architect of Middle Earth,** by Daniel Grotta-Kurska. This runs to 161 very full pages, and is available from Running Press, 38 South 19th St., Philadelphia, Pa. 19103, for $2.95 plus 25¢ postage. (Some bookstores also have it.)

The author frankly admits that this is an unauthorized biography, and that he was denied much material and turned away by some who knew Tolkien, since they have commitments to Tolkien's son, who is doing an authorized biography. That doesn't seem to matter. The picture of Tolkien that emerges seems remarkably complete and honest, and there's a nice balance in the handling of details.

A World Called Camelot, by Arthur H. Landis (DAW Books, 219 pp., $1.25) is an outright mixture of science fiction and pure magic. Down comes our hero, who's been trained as a planetary trouble shooter, to this world that has been observed by some benevolent Council of Worlds that won't directly interfere with other planets. All they know about "Camelot" is that magic works, and it seems there's some kind of monstrous evil about to overcome the better parts of this culture of knighthood and chivalry. They know this, because the crystal balls on which their observers spy have been prophesying it.

So our hero sets himself up to pass off as a native descendant of a great old-time hero, and to save a princess as a step to getting to the heart of things. But evil magic interrupts his good deed. And from there on, he must escape, take the

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princess home, and become a knight of might, to lead the world out of its troubles.

But several details bother me. The basic plot is all right, though hardly completely original. But sometimes the hero—supposed to have an unsurpassable I. Q., whatever that is—acts like an idiot. The battle scenes I find wholly unbelievable. The hero can't decide whether to talk "noble", courtly English or to use some rather inept slanguage. And the scientific explanation of the magic has been far better omitted; the author seems to think magnetic fields are those strange things the cults use to explain everything; they don't behave like the magnetic planetary fields I know about.

If you're looking for an adventure story with some fun in it, and if you're willing to leave your critical abilities turned off, it's probably worth the price.

Now let's turn to an author who knows far better than most how to blend the color of fantasy and the worlds of science fiction into a rousing good adventure yarn—Leigh Brackett. Her **The Reavers of Skaith** (Ballantine, 224 pp., $1.95) is the third book in her trilogy about the strange world of Skaith, in which her old hero, Eric John Stark, has returned to his fans.

Skaith is an old, old world; it is rapidly dying as its ginger-colored star fades. The people have strangely altered in their efforts to adapt, and we have troglodytes, sea-men, and all kinds of sub-races and ways of existing. In the more civilized sections, the Wandsmen provide a universal welfare for the multitude of lazy, greedy Farers. Over them are a few old men who rule the planet, milking the work of all others to care for the Farers.

And Stark, a sort of civilized savage and *mucho homo* indeed, is caught up in all the plots and counterplots, including a prophecy that he will lead the suffering people to other worlds—a thing the rulers will not permit. At the beginning of the story, the ships he had obtained to rescue some important people have turned back and decided to plunder all of Skaith. He's had troubles before—but nothing like this!

There's splendid color, a great feeling for all kinds of different people, good conflict, and everything else that a tale of this kind should have. Brackett is still absolute master of this type of story. For anyone who likes good swashbuckling adventure, I recommend the book without qualifications.

If you haven't read the previous two Skaith books, there is enough background given so that this book can be followed. Probably the earlier books are available or will be re-issued. But you can find all three together in one volume as a Fall selection of the Science Fiction Book Club: *The Book of Skaith: The Adventures of Eric John Stark*, $3.50.

And now to get away from stories with a fantasy element, we have **Quicksand,** by John Brunner (DAW Books, 221 pp, $1.50). This is a rather strange novel in some ways. Brunner takes an idea that is pure science fiction, but he uses it with a purpose and method that

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are quite different from what we're used to finding.

The novel deals with a psychiatrist, Paul Fidler, working at a somewhat rural English home for the disturbed. In the course of things, he is out with a search party, seeking a woman who has beaten up a man. He finds her—a naked, tiny, helpless-seeming girl.

But there are some curious things about her. Eventually, after hypnosis, Fidler learns her secret. And yep, you guessed it. She has come through time, apparently from a beautiful, wonderful future—but not really the future of Fidler's Earth, she indicates.

From there on, things don't quite follow the normal pattern.

Brunner seems to be working toward another type of book. As far as I can guess, it is a step toward something a lot of writers have talked about before: a *novel* which happens also to be science fiction, rather than a *science fiction* novel. A lot of the writing here and the details about his hero's life and the place where he works are handled the way they should be in any good novel. There is a single science fiction assumption; this is integral to the story, not patched in, but certainly developed with a quiet assurance that suits it to the handling of the rest of the novel.

I'm not at all sure how others will react to the ending of the book. I felt it was a bit too quickly passed into and covered, but it was well-established before, so it fits the book. It also fits the character of Fidler.

With a few reservations, I recommend Brunner's novel.

Man Plus, by Frederik Pohl (Random House, about 283 pp., $7.95) is absolutely straight science fiction, and a good example of that type of story.

In the world a short few years ahead, there are eight billion people on Earth. And generally, there are indications all hell will pop within a matter of a few more years, with the possible destruction of at least man's civilization. Somehow, the leaders have been persuaded to take out a form of insurance against that by establishing mankind on Mars.

To do this, they have to find a way to make it possible for man to live on the uninhabitable surface of Mars, at least long enough to get a colony going. No man can do this—without great alterations being made.

In one sense, this is the story of that man. He is turned into a complicated cyborg. His senses are altered, and he is given "wings" that can draw power to keep his body going, even without oxygen to breath. Inside and out, he is changed, and things are built onto his body to permit him to move and work freely on Mars as it really is. (Pohl is one of the first to drop the old ideas of the planets and work honestly with what we've discovered them to be.)

There are complications, but in the end, he does reach Mars.

And in the end, Pohl takes a good story and gives it another meaning entirely—and a fine one.

This is a good book, and I recommend it highly. ■

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BRASS TACKS

Dear Mr. Bova:

Why do you make such a policy of publishing crackpots' letters? . . .

I refer specifically to Roy Troxel's letter in the December Brass Tacks. His slightly asinine statements begin with the assertion that Isaac Asimov believes there's only one way for man to think. I've read a lot of what Asimov has written and he seems pretty tolerant to me. Sure. Asimov believes it would be more advantageous for us to think in a way that greatly improves our standard of living, freedom, and knowledge. Troxel would prefer to keep us in ignorance; thus he commits the same sin he accuses Asimov of. Secondly: science is a religion, huh? Then how does Troxel explain the fact that science works? Under any test you want to use, science works; it employs facts, whereas religion is a group of myths that comfort people who would prefer not to think for themselves.

Troxel is very concerned with becoming free, an admirable goal. But to obtain freedom you must first accept the truth. Troxel can't even accept the most basic truth; "one plus two equals three." Total freedom also requires freedom of choice; you hafta have control of your own destiny. Religious and astrological people would rather let a god or the random distribution of stars tell them what to do. (I know it's impossible to be completely in control, there are too many external forces operating on us. But one should learn to do his best to remove those limitations. If enough people try to attain freedom, it could be done.)

Finally, Troxel believes that simply gathering together two or more people somehow gets them to know each other better and "recognize" each other. Well, the fact of the matter is, the only time you get to really know another human being is during difficult . . . times. . . . If Troxel thinks you can know someone by the manner in which he flips coins, he's nuts; the person's reactions show only his barest surface qualities.

I finish: Mr. Bova, you're an excellent editor. But please, in that letter column—I have begun to get the impression that all my fellow SF fans are prudish, religious fanatics. Please, please, print a letter from an intelligent person now and then. It might clean the air a bit.

Keep the Hugo-quality stories coming. Analog's at the top again.

CHRISTOPHER DEVITO
1 Charter Ave.
Dix Hills, N.Y. 11746

"Brass Tacks" is the place where our readers can voice their opinions. Makes no difference if the opinions are unpopular, different, or argu-

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mentative—as long as they are cogent and interesting.

Dear Mr. Bova:

(Re) Analog's February 1976 issue:

There is a fantastic and an atrocious side to everything. On the Fantastic (note the capital "F") side is Frank Herbert's "Children of Dune." Mr. Herbert has (to risk cliché), escaped from the Jaws of Mediocrity, where he was obviously trapped all during "Dune Messiah," and produced a work of art. I would be surprised if "Children of Dune" didn't win the Hugo and Nebula awards.

On the other hand, Kevin O'Donnell's "A Matter of Pride," is an atrocity. It is a string of clichés looking for a plot. It is not worth the paper it is printed on. Who-Is-Not-A-Bigot, (and repeats it loudly), and the Soldiers-In-The-Prison - Camp - Who - Have - Lost - Hope, working to escape from the Cruel-And-Stupid Korean-Officer is something I thought Analog would not resort to. And another thing, what happened to the ending? It could go on for a novel. To paraphrase my sixth-grade teacher, "Kevin, you are capable of doing much better work. Now go back to your seat, and do it over."

Beside that one exception, your February issue was super. Keep up the good work.

MITCHELL WAGNER
54 Thadford St.
East Northport, N.Y. 11731

Glad you liked "Children of Dune" but as for "A Matter of Pride"—come on now! King was hardly a "Militant Black," nor were the other characters stereotypes at all. Moreover, you seem to have overlooked the underlying ideas behind the story, including the use of biological agents to imprison the POW's in their own bodies.

Sirrah Bova et illustrious al:

The December column offers a cornucopia of gems, but let's restrict the discussion to a couple of salient points.

UFO's are hardly a "problem." If they DON'T exist, then that is most assuredly and irrevocably that. If they DO, then that, also, is that.

Until they are proved or disproved, there is no problem. And unless they ARE proved, it will BE no problem. If they elect to land in Times Square at midnight New Year's Eve and evaporate a hundred thousand revelers with heat rays, THEN it will be a problem. In the meantime, who gives a damn?

Mr. Troxel has skewered the sacred cow of Science, an affront . . . that demands he be strung from the highest limbs of a Denebia zilph-tree by his heathen thumbs, until he recants.

Unfortunately, like a mosquito bite, it will not be alleviated by mashing the itch-mongering irritant. His questions bear more than a cursory glance and a dismissal as iconoclastic paganism.

Has, in fact, Science been elevated to the stature of a theology, and scientists been pedestalized as messiahs? Whereas Science has indeed been the prime mover to human advancement, Orthodox Sci-

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EDITORIAL *continued from p. 8*

at hand. Not on ideology. Not on desires or dreams or goals, no matter how noble they might be.

In his charming/chilling collection of essays called "The Screwtape Letters," C. S. Lewis points out that some Christian apologists recommend their version of religion, ". . . not because it is true, but for some other reason."

In science we seek the truth. We know that we can never find Absolute Truth; that will always elude us. But to settle for something less, because it fits our notions of what should be, or because it's ideologically sound, or because it's easier, or even because it's good—that way lies ignorance, darkness, and the death of civilization.

Notes from the Editor:

Because of the requests we've received from readers, we have printed one hundred copies of Tim Joseph's "Unified Field Theory," which was published in our December 1975 issue. The poem is printed on tinted 9" x 12" heavy stock paper, suitable for framing, and available *free*, as long as copies last. Write to The Editor, Analog, 350 Madison Avenue, New York 10017.

Because of the answers we have *not* received, Crucial Experiment II, the Time Twin Study, will be dropped. We received fewer than a dozen replies; apparently only a very few readers who know of persons born between February 2 and 6, 1962, are interested enough in checking the claims of astrology to participate in the Study. Too bad. It would have been informative to test the claims of astrology in a scientific manner, but we cannot conduct a study without adequate data.

THE EDITOR

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ence has been the greatest single impediment since the Church faded into insignificance in the Renaissance.

There is no single attitude quite as obnoxious as that of a "scientist" who says, "This is nonsense," to each and every theory outside of his limited experience. Science has created wonders, but orthodox scientists have ridiculed such items as steam engines, sound recording, television, airplanes, space flight, and meteors. If we would limit this narrow, parochial arrogance, we would do Science a giant favor. . . .

Respect science, if you must, but keep one hand on the plug. The time may arise when you'll have to pull it.

BOB RENAUD
28 Woodbine Ave.
Pittsfield, Ma. 01201

The problem is, are we going to accept ideas as being true without proof, or are we going to maintain a skeptical attitude until proof is offered? I submit that scientists are far more open-minded than the average politician, theologian, UFOlogist . . . or editor!

Dear Mr. Bova:

About Gribbin's piece. His letter to *Science* was no more than a statement that he disagreed with Challinor, nothing to get all upset about. If the probability that the earth's rotation is affected by solar forces is given a high 0.9 and the rotation rate affecting temblors 0.5 ("admittedly tenuous") then the probability of a linking is a low 0.45 (reference to the letter). . . . It seems as likely that the rotation rate will affect temblors, as that temblors will affect the rotation rate. Post hoc, ergo propter hoc. Like the chicken and the egg, it is all a matter of priorities.

Herbie Brennan's "Blessing in Disguise" is a mildly nice mood-story, but leaves open the ability of the Master to arrange the private audience. Surely he could have arranged for Ramal to break his own neck after the murder of the Messiah. . . .

"A Penny's Worth" by Stephen Robinett is just too convoluted and over-loaded with *psience* or *nonscience*. (Pronunciation as in *nonsense*.) But Robinett must be credited with doing his "research" well. The story goes back to the Craig Rice scientific detective stories. . . .

Comparison of stories by the same author in other prozines gives rise to the impression that your office does much more editorial polishing and smoothing. Of course you get the best available to begin with. Since F&SF is mostly the product of moonlighting, it cannot be expected that the best is really good. You seem to keep in mind more than most editors, the maxim: If it isn't good fiction then it isn't good science fiction.

ALEXANDER D. WALLACE
306 E. Gatehouse Dr.
Metairie, La. 70001

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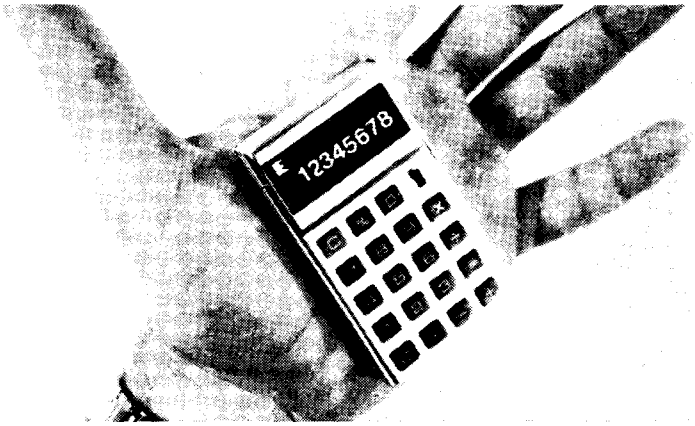

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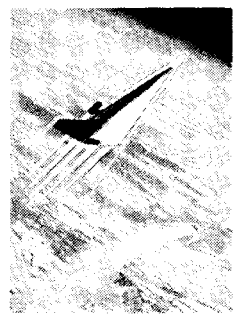

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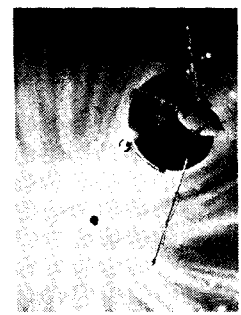

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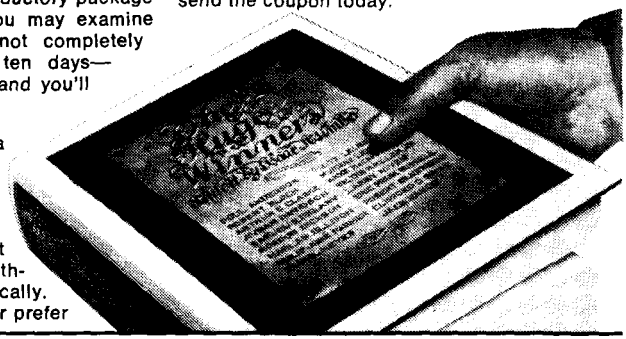

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